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A Modern Liberal Education in Medicine?.....*Douglas Black*

Improving Liaison Between Medical and Liberal Arts Colleges.....*Davis G. Johnson*

University of Miami School of Medicine.....*Homer F. Marsh*

An Experiment in Teaching Psychotherapy.....*Albert J. Stunkard*

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Obstetrician and Gynecologist-in-Chief, The New York Hospital

And WILLIAM B. STROMME,
Attending Obstetrician and Gynecologist, Northwestern Hospital and Fairview Hospital, Minneapolis

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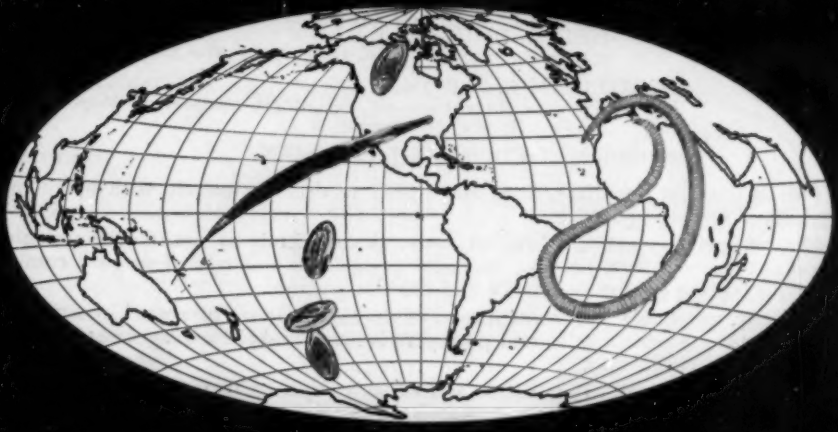

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With Our Authors

Douglas Black

A Modern Liberal Education in Medicine? Dr. Black, B. Sc.; M.D.; F.R.C.P., is a Reader in Medicine, Department of Medicine, University of Manchester, Manchester, England.

Gideon S. Dodds

Adventures in Medical Education. Dr. Dodds is professor emeritus, West Virginia University School of Medicine. This article is adapted from The Alphonse M. Schwitalla Lecture to the Alpha Omega Alpha Honor Medical Society, Saint Louis University School of Medicine, April 12, 1956.

Davis G. Johnson

Improving Liaison Between Medical and Liberal Arts Colleges. Dr. Johnson is assistant dean for student personnel and chairman of the Admissions Committee at the State University of New York College of Medicine in Syracuse. This article is based on an address given on December 29, 1956 at the Annual Meeting of the American Association for the Advancement of Science. The article previously appeared in the Summer 1957 issue of The Scalpel.

Homer F. Marsh

University of Miami School of Medicine. Dr. Marsh is dean of the school of medicine. He received his Ph.D. in bacteriology from Ohio State University. He was formerly professor at the University of Oklahoma School of Medicine.

Albert W. Stunkard

An Experiment in Teaching Psychotherapy. Dr. Stunkard is currently associate professor of psychiatry at the University of Pennsylvania. While at Cornell University Medical College doing research on obesity, he served as psychiatric consultant to the Comprehensive Care and Teaching Program, whence comes this article.

IN

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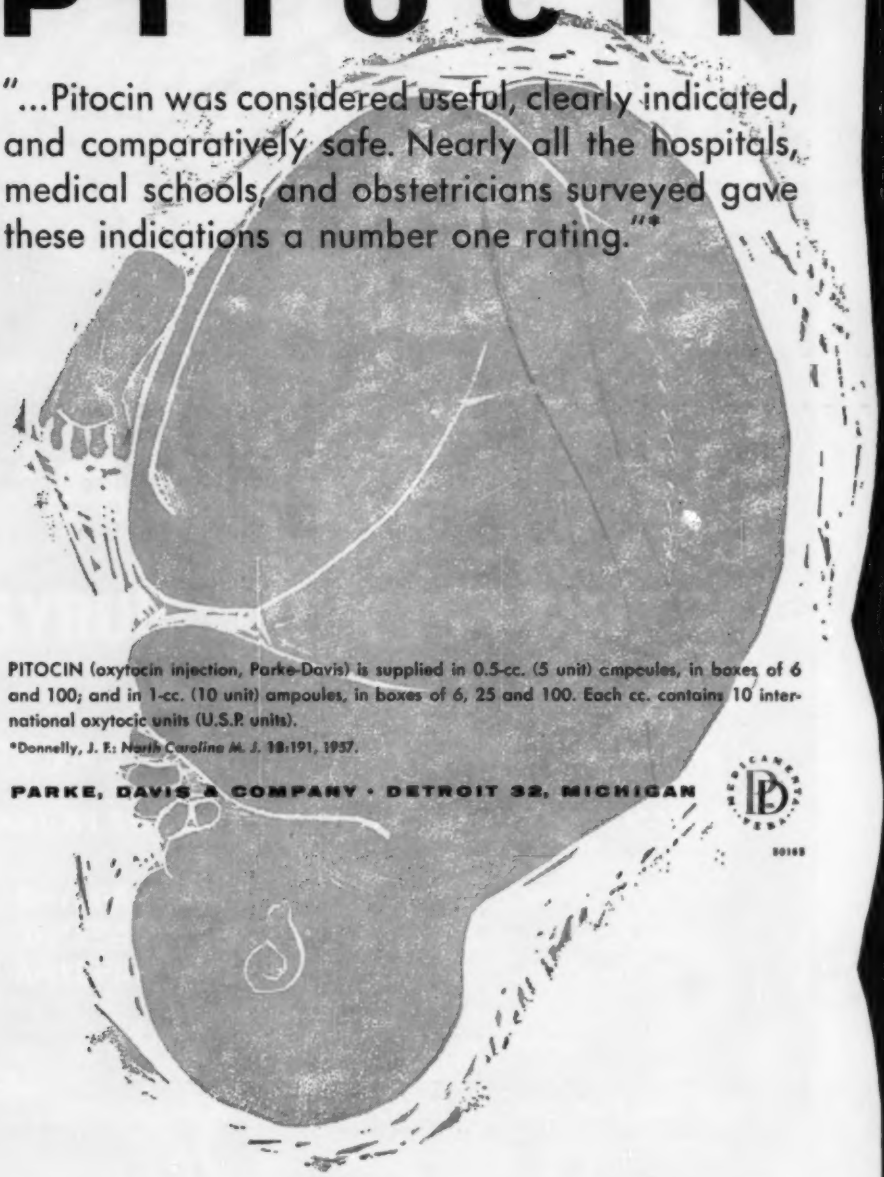

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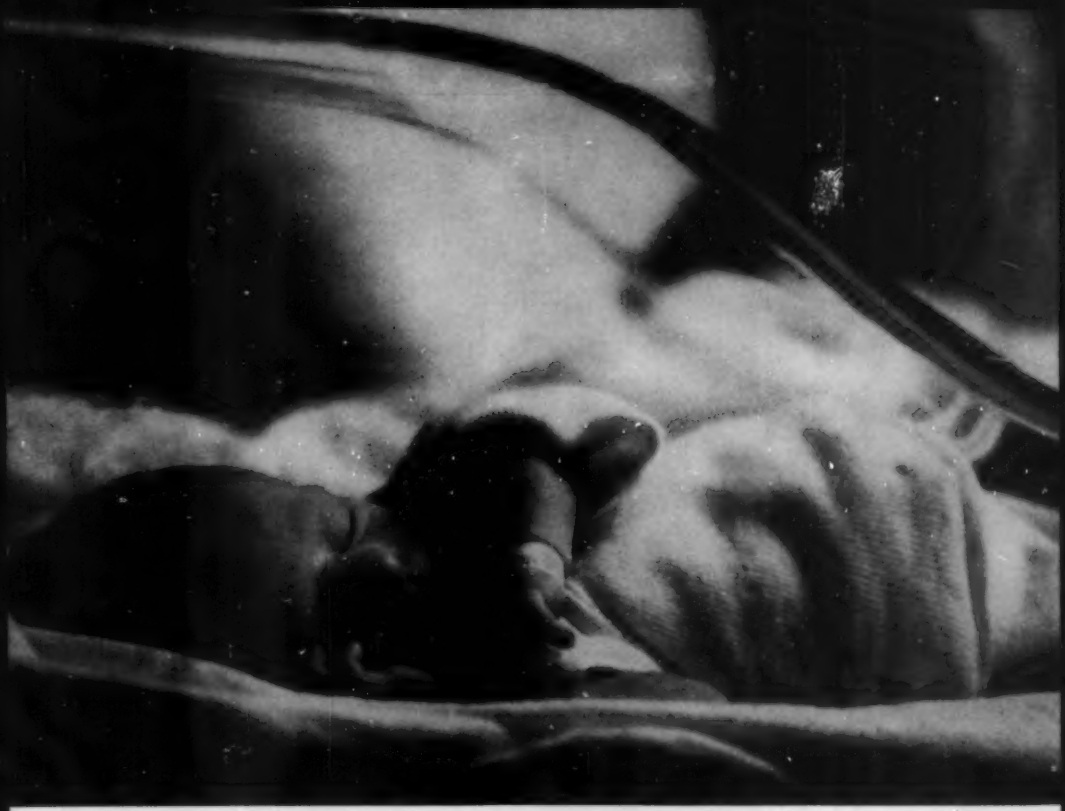

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1. Perkoff, G. T., *et al.*: J. Clin. Endocrinol. *14*:531 (May) 1954. 2. Abramson, D., and Reid, D. E.: J. Clin. Endocrinol. *15*:206 (Jan.) 1955. 3. Eichner, E.; Waltner, C.; Goodman, M., and Post, S.: Am. J. Obst. & Gynec. *71*:1035 (May) 1956.

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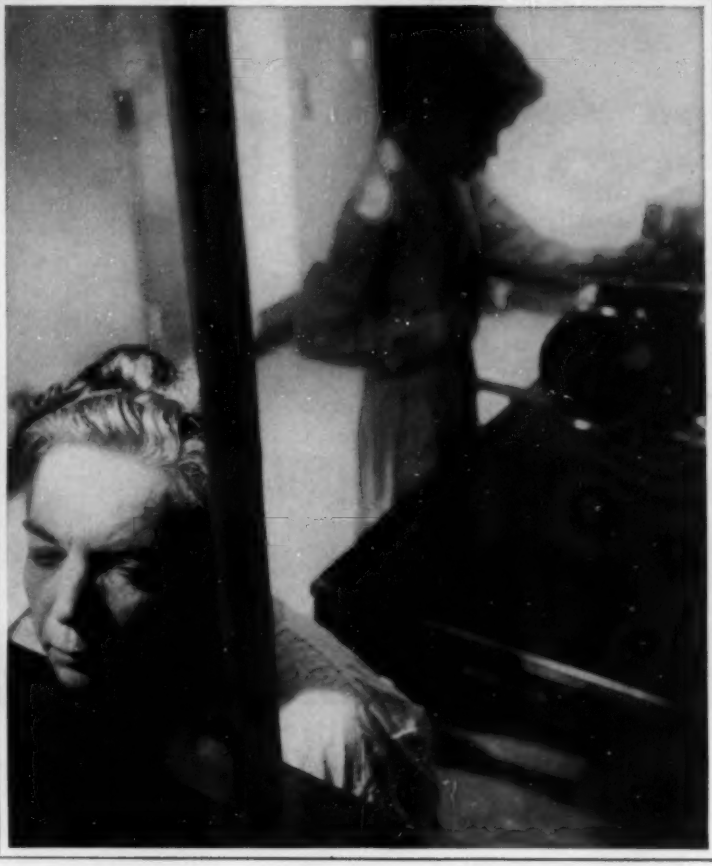

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American Public Health Association—November 11-15; Public Auditorium, Cleveland, O.

Southern Medical Association—November 11-14; Miami Beach, Fla.

Pan American Congress of Endocrinology—November 3-9; Buenos Aires, Argentina.

International Congress of Internal Medicine—April 24-26, 1958; Sheraton Hotel, Philadelphia.

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1. Alexander, Edythe L.: Mod. Hosp., May, 1957.

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*Ferguson, J. T., and Linn, F. V. Z.: Antibiotic Med. & Clin. Therapy *3*:329, 1956.

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*The American Foundation: Medical Research: A Midcentury Survey, Boston, Little, Brown and Company, 1955, vol. 1, p. XXXI.

**_Ibid._, p. 600.

A Modern Liberal Education in Medicine?

DOUGLAS BLACK

THIS MORNING'S POST brought news of a tablet containing not only iron, cyanocobalamin and intrinsic factor, but also five vitamins. A possible definition of good medical education would be "a process which would train future doctors to react instinctively against such neopolypharmacy, so that it would no longer be a sound commercial proposition."

A preference for precision over confusion is one of the fruits of a liberal education, as was plainly stated by Newman (1859). In addition to knowledge, which is the raw material of judgment, the educated doctor must aspire towards that grace of intellect, which is summarized, as the fruit of a liberal education, in these elegant terms—"But the intellect, which has been disciplined to the perfection of its powers, which knows, and thinks while it knows, which has learned to leaven the dense mass of facts and events with the elastic force of reason, such an intellect cannot be partial, cannot be exclusive, cannot be impetuous, cannot be at a loss, cannot but be patient, collected, and majestically calm, because it discerns the end in every beginning, the origin in every end, the law in every interruption, the limit in each delay; because it ever knows where it stands, and how its path lies from one point to another." Admittedly, when we contemplate the speed and diversity of medical progress, we may well despair of ever attaining this cultivated omniscience: but it is not an unworthy ideal, so long as it be tempered by humility and charity; and it is a proper ideal to be pursued within a university. This essay is concerned to defend the proposition that medical education must be liberal as well as professional, and to examine some of the means by which the liberal aspects of a university training in medicine may be fostered against the encroachment of an exclusive preoccupation with mechanical competence.

It would be possible to construct an argument that any democratic society rests ultimately on its liberally educated citizens, and in particular on those who are in a position to influence the thinking of their fellows. The classical and renaissance ideal of the *homo teres et rotundus*

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is indeed threatened by the multiplication of specialized skills in a modern society; but while we lack the possibility of an Admirable Crichton (I leave out of consideration a manifest genius like Leonardo), the general level of opportunity for education is higher than it has ever been. It is now more difficult, but every whit as important, for the doctor to stand out as an educated man. "More difficult," because professional competence requires that much of his training must be devoted to the acquisition of necessary facts, not all of which are understandably related, and this process is not in itself an education; "as important," because professional competence in a narrow sense is not enough—the most competent doctor meets situations for which his purely technical skill has no rubric, but in which he can still help his patient if he has the patient's respect and regard. The twin ideals of professional expertness and a high level of general education are not incompatible in any essential way; but they require considerable native endowment and application, and a real love of medicine for its own sake. We have suffered so much from the activities of a self-styled political "élite" that it is difficult for us to accept very happily the notion of an élite profession; but yet I feel that this is what we now need. We must not despise "the common man"—we will meet him too often to be able to do that—but we must still strive against the introduction of mediocrity into our medical standards. As Melville Arnott (1953) has said, "Medicine is no career for average people."

Need for more than skill

However, the need for a doctor to be a fit, and indeed a superlative member of a modern democratic society is not the main reason for stressing the importance of a liberal education as opposed to professional competence in the training of a doctor. The main reason is that even the highest degree of technical competence is not a static achievement, but one which needs constant remoulding as knowledge advances; the suppleness of intellect needed to assimilate the rapid progress in any and every discipline of medicine simply cannot be attained by a training which is exclusively centered on the acquisition of established facts and of technical skills. It requires, I submit, a modern liberal education, and this is perhaps the best place to say something of what this is. It is arguable (and it has certainly often been argued) that the ideal liberal education is one based on history, philosophy and languages—the study of what men have thought and done in the past, and of the way in which they have communicated their ideas to one another. It has even been maintained that the education of all educations is that based on the civilization of ancient Greece and Rome, and thoroughly protected from any taint of superficiality by an intimate grounding in classical Greek and Latin.

I have no wish to decry this type of education, or to deny that in the past the world has owed much to gifted individuals trained in this fashion; but I would suggest that an education limited to classical and literary studies is now an outmoded specialism, unfitted to produce good citizens, let alone good doctors. While it cultivates many virtues, and perhaps especially those of expression, the classical liberal education can leave its pupils with very little appreciation of the processes by which science has come into being, and

exerts its influence. The widespread equation of science with fact-finding or with technology reveals an alarming ignorance of the essence of scientific thinking, in which its palpable power consists. The collection of brute facts is only the groundwork of science, and technical application its by-product; the vital and truly scientific stage is neither of these, but consists of a sequence in which we can perhaps isolate the stages of making a generalization, reducing it to a hypothesis, and then devising a series of reproducible experiments which serve both to test the original hypothesis and it may be to lead on to further generalization.

This method of induction subjected to experimental testing often involves quantitative measurements; but quantitation is by no means the whole of science, even though the range of measurement has been powerfully extended from individuals to populations by statistical techniques. We can even recognize something akin to an aesthetic of science—as Polanyi (1956) puts it, "We draw a distinction between two kinds of error — namely, between *scientific guesses* which have turned out to be *mistaken*, and *unscientific guesses* which are not only false, but *incompetent*." When we consider further that the actual progress of science is initiated and attended by the passion of individual scientists and the controversy of groups, then we might almost claim that a broad study of science might lay as much claim to being a liberal education as may any system from which all consideration of science is primly excluded. However, these alternatives are not rigid, and the appropriate general education for a medical man should include both science and its general aspects and the humanities. It is this type of education which I have termed "modern liberal education."

Factual knowledge

The main threat to the medical course as an instrument of modern liberal education is a very obvious one, consisting in the enormous hypertrophy of detailed factual knowledge, some of which, such as the details of drug therapy, is of somewhat transient relevance. This difficulty stems from the growth of specialization, with its attendant growth of detailed knowledge; from the inertia of tradition, which perpetuates instruction in the medicine of previous decades; from a conservative reluctance to scrap courses dictated originally by needs which have now vanished; and from a vain search for comprehensiveness.

In this country, we have suffered long under a curriculum which was stabilized by "recommendations" of a statutory body, the General Medical Council—"recommendations" which had an "or else" quality giving them the effect of regulations. The curriculum is punctuated by formal examinations leading up to a final ordeal of some magnitude, after which, until very recently, the successful candidate might at once embark in practice, so that he must have at least a nodding acquaintance with "the whole of medicine." The dignity of various established "subjects" has been bolstered by recommendations of the "not less than X months" type, where "not more than Y weeks" might have been more appropriate, however impractical. The strain on medical teaching has scarcely been diminished by the growing demand, from practitioners and students, that the medical undergraduate should not be limited by the class-room and hospital-ward,

but should have an opportunity to observe general practice in the course of his training. In this regulated confusion, what hope is there for the advocate of a modern liberal education?

Freedom to modify curricula

Fortunately, in this country there are now some solid grounds for hoping that we may yet outlive the reproach that here we produce wise reports on medical education, but no practical action. To start at the top, the General Medical Council now has before it a revised set of "recommendations" which are permissive in their outlook rather than restrictive, so that there is freedom of maneuver for the individual medical schools to modify their curricula quite radically; in preparing these recommendations, the curriculum committee of the General Medical Council was influentially supported by a conference of medical teachers called by the Royal College of Physicians. Thus, the introduction of a compulsory intern year just after qualification has narrowed the wide gap between what should and what can be achieved before graduation; the unrealistic goal of "a comprehensive practical training" no longer rests on the undergraduate course alone. (This is not simply shelving an issue—while "comprehensiveness" is still a nebulous aim, the complete training, consisting of medical course + intern year, is now more fully practical, for practical skills can only be developed by practice under supervision, not by naked instruction.)

The third ground of hope for liberal reform of the curriculum is not yet at the stage of legal formulation; it is rather a change in opinion, which takes account of what has been called "the renaissance of general practice." General practice is becoming recognized as the greatest of the specialties, a discipline attracting more medical graduates than any other, and with its own intrinsic academic standards and special opportunities for research; this process of self-recognition has acquired a local habitation in the College of General Practitioners. The wider aspects of this important development do not concern us here; but it has important bearings on the undergraduate course. As Ellis (1956) has pointed out we cannot now hold the idea that the aim of medical education is to prepare the student for efficient general practice on qualification. The attempt to do this has never succeeded, and it is now tacitly abandoned. Specific training for general practice is now a postgraduate training, catered for by trainee assistantships in the health service. To say this is not an ingenious way of countering the demand for some undergraduate contact with general practice, either in health-centers or in one of the various schemes wherein general practitioners are attended by one or two students. It would indeed be an anomaly if general practice were the only branch of medical practice which was *not* set before the undergraduate. I support the thesis that general practitioners should take more part in undergraduate education; but I dissent violently from the proposition that every subject in the curriculum should be assessed in the light of its value as a preparation for general practice.

Need of modern liberal education

If I may sum up what I have been saying so far, the need for a modern liberal education for doctors has never been greater, nor is it likely to

lessen in the future. An understanding of the principles of science must supplement acquaintance with the liberal arts in equipping them even to take their place as responsible citizens; and such an education is the only one which will allow them a chance of accommodating themselves to the inevitable changes in medical practice. Certain changes in regulations and outlook in this country may provide us with an opportunity to educate our students rather than to confront them with a tangled zareba of specialisms and ill-coordinated factual information. In the remainder of this essay, I shall consider not the general problem of curricular reform, but those particular measures which might make the medical course more of an education. Consideration has to be given to the selection of students and of teachers; to the arrangement and content of the formal curriculum; and to opportunities for self-education during the medical course.*

Selection of students and staff

In this country at least, selection of students on any large scale is a phenomenon of the last decade; it presupposes that the number of students wishing to take the medical course is larger than the number of available places. The new situation has been brought about by the comparatively free availability of grants which are adequate to maintain suitable students through a six-year course of full-time study. Before the war, it was rather exceptional for the child of poor parents to be able to pursue the medical course; but now we have substantial numbers of such students.

In this medical school, selection is made by the dean of the school, on the basis of the results in an external school examination, the General Certificate of Education (Advanced Level); on an interview with the dean and tutor of the medical faculty; and on headmasters' reports. Probably the most important factor in selection is the showing which the applicant has made in the General Certificate examination; no distinction is made between students with comparable attainments in "arts" and "science" subjects, but those who have taken science subjects to a high standard at school may gain exemption from part of their first professional examination in medicine, or may sit the examination as external students. Apart from this advantage, there is no discrimination in favor of students who have specialized in science in their later school years. The grading at interview generally corresponds fairly closely to that based on examination results, but a few candidates disclose obvious personal inadequacies for the pursuit of medicine; headmasters' reports are useful mainly as an independent

*It is perhaps relevant to the opinions which I shall express to say that my own undergraduate education was at St. Andrews, then one of the smaller medical schools in which formal lectures were numerous, but were partly offset by generous access to patients and by long vacations. I did a little undergraduate teaching while holding research appointments at Oxford and Cambridge; but my main experience of medical teaching has been during the past 10 years in Manchester, a large and progressive medical school which has had its own curriculum under extensive review. In the autumn of 1956, I had the opportunity, which I owe to the Wellcome Foundation, London, of visiting the Columbia-Presbyterian Medical Center, and medical schools in Baltimore and Boston. I am grateful to the teachers in these schools who so generously spent their time in discussing educational and other problems with me.

check on what the applicant says of his general school activities.

It is fashionable to criticize a preponderance of attention to examination results in the selection procedure, and to advocate other measures, including intelligence and aptitude tests. One of the four sections at the first World Conference on Medical Education was devoted to selection procedures, and wide variations in practice were disclosed. One of the more definite contributions was that of Bartlett (1953), who reported a low correlation between intelligence test results and subsequent examination performance; aptitude tests might give a reasonable prediction of unsuitability, but were of little value in predicting degrees of success. The personal conclusion which I would tend to draw is that examination results should hold their place as the main criterion of selection; elaboration of selection procedures makes great demands on the time of teachers, and the value of elaborate procedures is at best "not proven."

Selection of students

The main disability under which we labor in this country is that we have to select our medical students when they leave school; whereas in America the selectors have a record of college performance to aid them. It seems to me that under our present system we have to accept the fact that we will admit a number of students who are successful enough at school, owing much of their success to pressure from teachers and parents; but who cannot maintain their promise in the more independent conditions of university life. The obvious way of dealing with this problem is to exclude such students as soon as possible after they have made their unfitness manifest; this causes hardship to individuals, but it may well be better to do this than to carry into the later years of the curriculum a clogging burden of half-hearted and inadequate students.

Stephen Leacock once likened school to an educational convoy in which the speed is that of the slowest ship; it is important to avoid such a situation in the medical course. I do not, of course, advocate exclusion from medicine simply on the basis of failure to pass examinations, especially those in pure science; what I have in mind is the student who is agreed by all his teachers to be an idle misfit, and who merely sets the final seal on his lack of endeavor by failing to pass formal tests. Occasionally, a difficult problem arises when an otherwise adequate student comes to devote an undue proportion of his time to student societies. The best students can do a surprising amount of such work without prejudice to their scholastic performance, but in some cases extracurricular activities are made the reason or the excuse for inadequate performance at study. These students are a different problem from the apathetic and disinterested, and can usually be helped towards adequate performance by a temporary curtailment of excessive general interests. In summary, selection of students is a fallible process, and we must be willing to recognize our mistakes, and deal with them with sympathetic firmness.

Selection of staff

The selection of staff is even more difficult and more important than that of students; and again I am very conscious of having no magic solution to offer. On the whole, I am inclined to think that the best teachers select themselves, not indeed by

a wish specifically to teach, but by a determination not to be excluded from a university or hospital atmosphere which they find stimulating. There is no stock prescription for "a good teacher" in even one of the disciplines into which medicine is conventionally divided. If I may take internal medicine as an example, one man finds his aptitude in observing the varied manifestations of disease in individual patients; another is fascinated by the personal or social impact of ill-health, and by the practical means of mitigating these consequences; while a third is caught up in an academic consideration of the mechanism, or it may be the very nature, of some specific disorder, or, more commonly now, of some syndrome of disordered function. Each of these approaches has justified itself by results, and in a good department of internal medicine they should all be represented; in filling any specific post, it seems to me more important to decide whether a candidate is capable and enthusiastic, than whether he approaches medical problems in one particular fashion.

I would certainly follow Melville Arnott (1953) in regarding "pedagogic facility" as "a quite subsidiary qualification" in the choice of medical tutors. The "good teacher," tout court, is too often a man who has achieved clarity, first for himself and later for his pupils, by a quite arbitrary selection of strands from the tangled web of first-order medical phenomena. I am not a breathless advocate of confusion for its own sake, but the medical know-all with his lists and tables is a gaoler of the inquiring minds of his students; his prison may be popular, but this does not justify his system, for his prisoners will come out unfit to tackle the problems which he has postponed.

In escaping from speciousness, we need not rush to utter obscurity, and medical teachers cannot escape the obligation of some clarity in their discourse; but this should be attained by distinguishing the known from the unknown, not by the creation of certainty where none exists.

Content of the curriculum

Regarded as an education and a preparation for future logical thinking, the medical curriculum calls for drastic pruning, and only secondarily for development. The subjects which particularly need pruning are those whose content is almost entirely factual, while the subjects worthy of development are those in which the relations between facts are specially important.

This line of argument has often been countered by the claim that the acquisition of facts is in itself a valuable mental discipline, which stimulates the memory, on which every doctor has to depend. Now, this claim would have greater cogency if there were any evidence that the supply of 'hard facts' in the present curriculum was inadequate, or barely adequate, as a stimulus to memory; but observation suggests that the exact contrary is the case, that students are so eagerly stuffed with facts at all stages that they only preserve their capacity for new information by jettisoning much of what has been taught them in earlier years. Ask a final-year student how much anatomy, or even morbid anatomy he still remembers, and you will get a revealing answer. It may be, of course, that if students were taught less anatomy, they would remember still less of it than they apparently do; but this has never been proved, and I would question whether the English student's 5-6 terms of anatomy makes any more

permanent impression on him than his American counterpart's couple of terms.

The present allotment of time to structure and function in the preclinical course dates back to a period in which topography had been established in detail, and was the basis of active surgical advances; we have now to a large extent been overtaken by a hypertrophy of functional studies, including the new science of biochemistry and looking forward to many applications in internal medicine undreamt of 50 years ago. The time is surely ripe for reassessment of the relative importance of anatomy and physiology in the preclinical years. One way of meeting the difficulty is to integrate the courses in anatomy and physiology, as has been done at Birmingham (Zuckerman, 1953); another way is to cut down the time given initially to anatomy, but bring in anatomists to teach applied anatomy in conjunction with surgery during the clinical years. Any really substantial reduction of the time devoted to pure anatomy implies a departure from the cherished tradition that the student shall dissect the whole body: my recollection is that much time was wasted in this way, though I cannot of course exclude a process of unconscious learning so subtle that it has left no present trace. In relation to other pressing needs, it seems to me that this is a luxury which we can no longer afford, and that it could profitably be replaced by dissection of one part and demonstrations of the rest. Detailed topographical anatomy should be reserved as a postgraduate employment for impending surgeons.

I have dwelt at some little length on the case of anatomy because it is quantitatively important as a large nugget of predominantly factual teaching in a curriculum which must become gradually orientated towards a dynamic functional approach if it is to serve our needs. However, many other subjects, if not all, are guilty of accumulating detail to the point of obscuring principles. It is not fair to leave the task of selection to the student, what to remember and what to forget, however well he may perform at least one of these functions. My case here is not against the teaching of all details—these are necessary both to exemplify principles, and because attention to detail is a necessary part of practical medicine. But we must be prepared to keep our detailed teaching constantly under review so that we can promptly eliminate what belongs to that no-man's-land of history, the recent past.

Turning to the positive aspects of the curriculum, I agree with Ellis (1956) when he says that any plans for medical education "must endeavour to ensure that medical education becomes a continuous process of learning, progressing by interlocking stages, each with its own educational objective and techniques of teaching relevant to it." He goes on, however, to describe nine stages, even excluding the preliminary study of general science and I think his scheme, for an outline, is too complicated. It does not, of course, have the complexity of the present curriculum with its arbitrary examination hurdles and its squeezing of certain subjects into odd corners. One example of this confusion is the discipline variously known as pharmacology, materia medica, or therapeutics, which is treated in many schools by a long lecture course in the fourth year. At this stage many students have been tempted by suc-

cess in the second M.B. examination to think that they have done with physiology, and at the same time they have a detailed course on individual drugs before they have seen them used in practice or acquired enough clinical knowledge to understand the indications for them.

This subject should logically be studied in two separate stages, one quite early in the course in close relation to physiology, and one much later when the student has enough knowledge of disease to appreciate practical therapeutic details. My own division of the medical course would be into four stages, of which the first may already have been completed at school. These are

1 General science — chemistry, physics, and biology.

2 Study of normal structure and function.

3 Introduction to the causes and nature of disease, and the approach to patients.

4 Further experience in the observation and care of patients, and the community aspects of disease.

In the last three stages of the course, care must be taken to keep before the student the principles that people have minds as well as bodies, and that medical progress depends on fundamental and applied science.

1) General science— "the pre-medical subjects."

The aim of this stage of the course is to give the medical student an understanding of the scientific approach, and to equip him with knowledge of such established information in the subjects studied as may later be applied to medicine. The aim is not to prepare him for a degree in pure science, and classes for medical students should be distinct from, but not inferior to, those given to science students. Within these subjects, some priority should be given to general biology, organic chemistry, genetics and the principles of a statistical approach; the details of inorganic chemistry, and of physics are less important. In practical classes, the emphasis should be on systematic observation, and on the precision and errors of measurement rather than on the standard of comprehensiveness needed for the student proceeding to a science degree. Two courses should be available, one of 1-2 terms for the student who has specialized in science at school, and a course of 2-3 terms for those who have only taken elementary science at school. One quantitative consequence of this arrangement would be that the student specializing in science at school would be exempted from only one term of his university course, instead of from a whole year; this would lessen the pressure in schools for future medical students to specialize in science, while not of course deterring those who wished to do so, irrespective of their future career.

2) Study of normal structure and function.

The aim at this stage is clearly to give the student as full an understanding of normal man as is open to anyone whose experience of adult life is still short. This stage must obviously include a basic compulsory course in the essentials of the present disciplines of anatomy, physiology, and biochemistry, and instruction in normal psychology and on the action of drugs. Even at this stage of the curriculum, however, the compulsory course should not fill the working day; the student should have free

time, which he may never enjoy again to the same extent, to develop socially, to learn to use a library, to pursue some special topic which interests him, or even to learn another language or the elements of sociology. He may decide to spend a vacation on some specific study or investigation; or to devote a year to advanced study for a B.Sc. degree. The opportunity for these varied activities must be present, but without any external compulsion. If dissection were curtailed, as suggested earlier, this stage of the course, even with the inclusion of pharmacology as an extension of physiology, could be completed in five terms.

At this stage, I believe that the students both appreciate and benefit from a look ahead at their clinical studies. Suitable patients should be shown to groups of preclinical students, and the problem of function discussed by physicians and physiologists together, with the students participating fully in the discussion. We have now had 10 years' experience of such classes which the students enjoy, and which show them that their current studies are not academic, but can be of practical relevance to the understanding and management of disease. This type of exercise does not of course form any major part of the teaching, but three such classes a term are not too much to devote to the linking up of physiology with medicine, or it may be of anatomy with surgery.

3) Introduction to the study of disease and patients.

The aim of this stage is to provide understanding of the many factors which cause morbid departures from normal health, and to introduce the student to clinical techniques in a wide sense. The predominant academic disciplines are pathology and bacteriology, but the teaching in both of these should be general, leaving over the pathology of individual organs to the next stage in which the student has enough clinical knowledge to appreciate the effects of the changes described; some detailed bacteriology could also be taught later on in conjunction with epidemiology and public health. In this period there should be a short introductory course of lectures, in which representatives of a number of clinical subjects should take part. In addition to general medicine and surgery, this course should include talks by representatives of psychiatry, child health, social medicine, etc., which have as their main object a presentation of the scope of that particular subject, and the way in which it helps the patient. Clinical work on the wards begins in this stage, at first with demonstrations of how to take a history and carry out a physical examination but later (and as soon as possible) with the allocation of patients to individual students, who learn to talk to and examine their own patients, while not at this stage accepting full responsibility for ward notes. During this stage, too, the students are introduced clinically to surgery and the main specialties.

In this period, many students become confused by the complexity of modern medicine, and it is important that each teaching unit should have a staff-student ratio which allows the tutorial system to be practiced, in which a teacher meets two or three students once a week to discuss with them either their own patients or more general problems. In this school, as in most others, a teaching unit has on its wards either junior or senior clerks; but I would

like to see the experiment of a mixed firm of say four juniors and four senior clerks, in which the seniors would be responsible for ward-notes, while the juniors see patients with them. The duration of this introductory stage could be three terms.

4) Further clinical experience.

This should be a period of two years, not interrupted either by examinations or long lecture-courses, in which the student takes his full place in the working of the teaching hospitals. He does his midwifery, and is a senior clerk and dresser, with considerable supervised responsibility to his patients. He attends outpatient practice in the special departments as well as in general medical and surgical outpatients. He sees general practice both in a health-center and as the companion of an individual practitioner on his rounds. He also learns of the social impact of disease, and the social means available to allay hardship; and his attention is directed to the mental causes and effects of illness, and the part played by practitioners, by internists, and by psychiatric specialists in dealing with psychosomatic illness, the psychoneuroses, and the major psychoses.

During this stage, and particularly in his final year he should have in each term a few "combined classes," in which members of two, or rarely three, departments present their views on some suitable topic for up to 30 minutes, after which there is a general discussion between students and staff. The best-established form of such classes is the clinico-pathological conference; but other combinations are possible, and in Manchester we have been experimenting with these for the past three years. Such conferences depend for their success on a good choice of opening speakers and chairman, and on the availability of members of staff other than the opening speakers to help the discussion along when necessary. The actual choice of subjects is influenced by local availability of speakers; some topics that we have used are given below.* As I see it, the value of these classes lies in demonstrating to the students that departments are not isolated, that the dogmatic assertions necessary to most text-books can be questioned, and that fresh ideas can emerge from discussion by people occupied in different ways.

The conventional curriculum is stratified at rather frequent intervals by examinations. Details vary in the different universities, but in general there are separate examinations in some 15 subjects, taken in four main groups; in addition, there is a considerable number of less formal tests and examinations, both in the main

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Topic	Department providing opening speakers
Coronary heart disease	Pathology and cardiology
Dyspepsia	Medicine and psychiatry
Dyspnoea	Physiology and medicine
Extrapyramidal syndromes	Anatomy and neurology
Hepatic failure	Medicine and surgery
Mitral valvotomy	Cardiology and thoracic surgery
Old age	Social medicine and geriatrics
Reflexes	Anatomy and neurology
Suicide	Psychiatry and medicine

"degree" subjects and in other subjects. There are some glaring anomalies; for example, full-scale examinations in forensic medicine are common, while psychiatry is rarely included as a separate subject in the formal examinations. The earlier examinations include written papers, practical work, and oral examination; in the final examination, there are written papers, orals, and a clinical examination in each major subject.

Many teachers are concerned about the effect of so many examinations on the student; for at least a term before the main groups of examinations, the average students concentrate on the forthcoming ordeal, and cannot be interested in other subjects. On the other hand, success in the final examination admits a student to provisional registration without further test, so the final examination at least cannot be made as informal as in those countries where there are independent state examinations. However, very few students who get into the clinical years fail to qualify in the end, although they may be a year late in doing so; the exceptions are those who have done badly in every subject, and should probably have been excluded much earlier. With these things in mind, I would suggest that many of the earlier examinations could be replaced entirely by certificates from departmental heads, based in part on informal class examinations. This is already the practice in clinical subjects as important as psychiatry. In other subjects, a good performance in class might be allowed to exempt the student from a full-scale examination so that the borderline students could be assessed as a group, and not mixed up with students whose success is a foregone conclusion. A formal examination in anatomy and physiology should be retained, largely as some measure of protection against the entry of really bad students to the hospital course.

A final examination, including clinical testing, is also needed, if only to satisfy statutory requirements for enrollment on the register. Even here, however, the nature of the tests should be critically assessed, as has been done for the Belfast final examination in medicine by Bull (1956). A common form of paper requires the writing of four essay-type questions in three hours; in a statistical analysis of the marked answers to questions of this type, Bull showed that only 19 per cent of the total variance in marking could be attributed to true variance between students! The proportion of student variance was greater when a larger number of short questions was substituted for essay-type questions. This points towards multiple-choice questions as the ideal way of testing factual knowledge, and it is even claimed that questions can be devised which will also test clinical judgment. This claim is not generally accepted here, and in Manchester we are now using one paper containing numerous short questions to cover a wide range of topics; and a second paper giving a choice of five or six subjects for a three-hour essay. In Bull's analysis, the clinical part of the examination showed much better agreement among examiners than did the written paper; and clinical examination will probably remain the core of the final examination. It is of interest that the answers to multiple-choice questions correlated rather poorly with the marks awarded in clinical tests, in spite of the internal consistency of the latter marks. Bull suggests that the clinical examination tests

personality factors as well as factual knowledge, and this is an advantage.

Liberalizing the curriculum.

In discussing the content of the curriculum, I have stressed the need for more orderly arrangement, for discriminating against unnecessary factual knowledge, and for lightening the burden of frequent elaborate examinations. All these measures are perhaps prerequisites of a modern liberal education in medicine, but they should be supplemented by more positive steps, for which they themselves provide the time and opportunity.

Elsewhere (Black, 1957) I have tried to summarize the object of medical training thus—

"In my submission, the general aims of a medical school are to find good students; to impart to them a system of technique, a body of knowledge, and also an outlook on medicine which will leave them with both the desire and the capacity to accept the changes and accretions in knowledge which will surely come; to do all this in such a way that their time will not be wasted, their enthusiasm damped, and their maturity postponed by an enforced submission to evanescent authority; and finally to set them, not ungrateful, on the narrow way between brittle self-confidence and unhelpful hesitancy. For aims such as these, good teaching is a necessary, but not a sufficient, condition; there must also be examples of clinical care, of scientific critique, and of the advancement of learning."

Now the present curriculum is probably adequate in imparting technique and factual knowledge. Where I think it breaks down is in pursuing these aims with such time-consuming zeal that not enough opportunity is left for the student to develop his own outlook on medicine, with some guidance from his seniors. Fortunately, the best way of accomplishing this third objective lies ready to our hands; we must leave more time for the student to spend with his own patients and also create the conditions whereby he can consult his seniors at all levels when he wishes it.

Our system of clinical medical teaching is traditionally based on ward-clerking, and what we have to do is to assault the proliferation of didactic accretions which have been allowed to encroach on time spent in the wards. Many of these things are due to the uncoordinated zeal of separate departments, and are not individually harmful, but only in their mass. We must take drastic steps to bring down their bulk to an amount which can be concentrated in those parts of the day when the wards are not open to students, and at the same time the wards should be opened at all reasonable times. One major obstacle is the existence of courses of 80-100 lectures in a number of subjects; lecture-courses should introduce, supplement, modernize, correct, and palliate the information available in text-books, and not attempt to duplicate or replace them. Shortening of lecture-courses by 50 per cent might well improve rather than decrease their value; but this is not a reform which can be forced on other departments except by a general self-denying ordinance, which I believe to be long overdue.

Clinical case-taking not only supplies clinical knowledge in such a way that it sticks; it is also liberalizing in a general sense, for it brings the student into privileged relationship with all manner of people. I

have to confess that I remember my own first patient not so much because he was in cardiac failure (which I have often seen since), but because he was a gill-filler in a heckle-works (an occupation which has seldom come my way again). Perhaps one learns more social medicine of a practical sort in the wards and outpatient department, or on a practitioner's round, than in special seminars.

Now, I do not wish to imply that the student be just thrown into contact with patients without either preparation or guidance, and left to collect a series of impressions at random. The medical staff must be available to him for consultation, and he must have his faculties concentrated by being responsible for his patient's welfare in some degree. This responsibility should be graduated, and here I found much to admire in the American system of supervised student-care of patients and the facility with which students could take problems to their seniors and feel confident that time would be spared to discuss them. Of course, American students are on average a year or two older than British students, in an age-group when maturity advances rapidly and there is a larger staff available for consultation. But I was also conscious of a positive willingness among the staff to be consulted by students which is less usual in Britain. Our relative lack of this engaging trait cannot be explained away entirely on the basis of our greater per capita clinical load. It is perhaps partly a difference in national characteristics; on the whole in Britain we look less suspiciously at tradition and authority—or, if you prefer it, we are gulled by them more readily. My own preference is decidedly in favor of free discussion at all levels, as opposed to authoritarian pronouncements. But may I be devil's advocate enough to suggest that discussion for its own sake is not enough. It should be informed discussion for one thing, which implies that some members of the group at least have thought about the matter in solitude beforehand; and so far as discussion in the wards is concerned, it should be "down to earth," in the sense that it should remain relevant to the individual patient, who must not feel that his attendants are more interested at that time in the general problems of medicine than in his own (to him) absorbing illness. The more armchair aspects of discussion can profitably be postponed until after the ward-round. In other words, discussion must be pointed and relevant, which need not prevent it from being enjoyable.

If students find variety among their patients, they should also be allowed to find it among their teachers. These can surely be different from one another in personality and background, even in mannerisms; different students feel more or less sympathy with the outlook of different teachers, and if teachers are a varied rather than a homogeneous group, the student has a better chance of finding a teacher from whom he can learn. For this reason, I am against too rigid a notion of how medical teachers should be selected, and what experience they should have had. There are a number of generalizations current in this field, each of which has something to be said for it, but which add up to a collective impossibility.

Taking requirements for a teacher of internal medicine which have been seriously proposed, I do not see how one individual can possibly have

done some general practice, engaged in part-time practice, worked in several hospitals, spent time in non-clinical departments, and done original work in medicine. If all these things are good in themselves, and I believe they are, the only way to reap their benefits is to spread them over a number of teachers, each of whom has done one or more of these things. Contact with teachers of various experience working together in the same department is for the students a definite contribution to a liberal education.

While the provision of adequate time with patients, and opportunity of contact with a varied staff are to me the essential positive steps towards a modern liberal education for medical students, there are other things, of an ancillary nature, which can be done. Some of these, such as "combined classes" and a clinical tutorial system for ward-clerks, have already been mentioned. Student medical societies have an important part to play, as have voluntary student discussion groups; where teachers take part in such groups, it is desirable that the subject should be opened by one of the students, rather than by a teacher. Students should also be encouraged to attend the meetings of local medical societies.

In Manchester, we have four lectures on medical history each year, which are primarily voluntary lectures for students, but which are also attended by teachers. In any active school, members of staff are frequently preparing papers for delivery to national societies; some of these are well-suited for independent delivery to the students of the school, and a series of such talks has been initiated here by Dr. William Brockbank, the dean of clinical studies. In order to develop powers of expression and criticism, occasional essays are requested from the students and they also need training and practice in the art of presenting patients in ward-classes and clinical meetings. Other, and it may be better, means may suggest themselves to anyone who has been convinced by my arguments in favor of a modern liberal education in medicine.

As a final warning of what can happen if we allow recent trends in the curriculum to continue unchecked, I would like to return to Newman, whom I quoted in my first paragraph, and give you his description of the products of an illiberal education. He paints them as "those earnest but ill-used persons who are forced to load their minds with a score of subjects against an examination, who have too much on their hands to indulge themselves in thinking or investigation, who devour premiss and conclusion together with indiscriminate greediness, who hold whole sciences on faith, and commit demonstrations to memory, and who too often, as might be expected, when their period of education is passed, throw up all they have learned in disgust, having gained nothing really by their anxious labors, except perhaps the habit of application."

I think we can avoid this fate for our students if we will only take courage to lighten the load of factual teaching and examinations, and to leave the time for some of the liberalizing experiences which I have outlined. We have now, in Manchester, at least succeeded in insinuating one break of three months into the previously continuous three final years of the medical course; this can be spent as the student elects, and gives him the chance to see work in other hospitals or in general practice, to learn by experience something of medical investigation, or to cultivate

himself in accord with his private bent.

I owe a special debt of gratitude to my chief, Professor Robert Platt, for discussing these problems with me, and reading through the MS; the final responsibility for the weaknesses and anfractuosities of this presentation is, of course, entirely mine.

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¿Una educación liberal moderna para los médicos?

En este ensayo, un inglés (Profesor de Medicina de la Universidad de Manchester) discute la necesidad—y la posibilidad—de una educación liberal moderna para la profesión. Esta necesidad, dice el autor, es hoy más grande y quizás más difícil de satisfacer que nunca. Mas el cree que, a pesar de la siempre creciente extensión del curriculum, a pesar de la enorme cantidad de conocimientos "factuales" que los estudiantes de Medicina deben absorber, y pese a la tendencia a la especialización, una educación liberal no resulta incompatible con la educación médica. Lo que se necesita para lograrlo es, en primer lugar, una definición nueva de lo que constituye una educación liberal en nuestra época: para el autor, el antiguo concepto, es decir, el de una educación basada principalmente en el estudio de lenguas clásicas, Historia y Filosofía, no tendría gran valor en nuestro tiempo. El propone, en cambio, una combinación de estudios inteligentes de Ciencias y Humanidades. Después de criticar brevemente, en términos generales, los defectos principales de que adolece el *curriculum* médico tal como hay está en vigor en las Escuelas de la Gran Bretaña, el autor, expresando la esperanza de ver pronto reformas radicales, dedica la mayor parte de su trabajo a la consideración de algunas medidas prácticas que podrían contribuir a convertir los cursos de Medicina en una verdadera "educación liberal moderna". Se señala que algunas de esas medidas ya han sido introducidas, con excelentes resultados, en el *curriculum* de la Escuela de Medicina de Manchester.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

Improving Liaison Between Medical and Liberal Arts Colleges

DAVIS G. JOHNSON

AS INEVITABLE PARTNERS in the job of selecting and educating future physicians, both medical and liberal arts colleges must do everything possible to improve mutual liaison and cooperation. But how can this realistically be accomplished in the busy lives of medical and premedical educators?

A number of suggestions relative to both technique and philosophy are given below. Those concerned with technique are organized under the five major methods currently in use, but emphasize possible new approaches.

Method No. 1—Publications

As well as medical and liberal arts schools keeping each other on their mailing lists for such standard items as catalogues, the writer would urge that such publications as student handbooks and special leaflets dealing with premedical and medical education also be exchanged. This would seem to be particularly important on the part of the medical school, which could well send copies of such student publications as the yearbook and student quarterly, in order to make readily available to the premedical advisor and student more of the "flavor" of the medical school from the student's point of view. Similarly, if the undergraduate college should publish such special studies as those on graduates who have gone on to medicine, these would certainly be of great interest to medical schools.

In addition to publications from the colleges and medical schools themselves, attention should also be called to four basic references from other sources, namely:

1) Preparation for Medical Education in the Liberal Arts College[3]
2) The Annual AAMC Handbook on "Admissions Requirements"
3) The Journal of Medical Education
4) The Alpha Epsilon Delta Journal, THE SCALPEL

These four publications, in a sense, comprise the "professional literature" for fostering better liaison and understanding.

Dr. Johnson is assistant dean for Student Personnel and chairman of the Admissions Committee at the State University of New York College of Medicine in Syracuse. This article is based on an address given in New York City on December 29, 1956 at the annual meeting of the American Association for the Advancement of Science. It was part of a program on "Premedical Education" sponsored by Alpha Epsilon Delta in cooperation with AAAS Sections C, F and N.

This article was previously published in the Summer 1957 issue of *The Scalpel*.

Method No. 2—Correspondence

The second major method of liaison and cooperation is that of individual letters or "correspondence." Although most of these are sent from the undergraduate colleges to the medical schools by way of letters of recommendation, more should undoubtedly be done to increase the information flowing in the other direction.

In letters of recommendation, the importance of "frankness" and "candor" cannot be too strongly stressed. When the participants in the recent AAMC Admissions Institute[1] were asked the extent to which various factors influence the value they place on a premedical report, 80 per cent rated the candidness of the report as of prime importance. Other factors felt to be of great significance were, 1) "experience with the recommendation policy of the premedical group or advisor," 2) "the documentation of statements," and 3) "the degree of rapport between the admissions committee and the premedical advisor." All of the above underline the need for liaison and cooperation.

All medical schools, have received classic letters regarding "candor." Those which come to mind at our school include the comment, "if this student is *not* accepted to medical school, many people will live longer and healthier lives."

On the more positive side, a frank recommendation may specifically indicate that although the applicant may not have the usual personality characteristics for "medical practice," he has strong aptitudes for other phases of medicine and should well be considered seriously for that reason.

One new development in letters of evaluation has been that of including not only the usual rating of intelligence, personality, etc., but also giving a specific judgment as to the individual's "reserve power"—or his ability to extend himself to meet the increased demands of medical education. This is a judgment which the premedical advisor is often in a much better position to make than is the medical school because he has a closer idea of how hard the student has to work to obtain his grades, the extent of his outside employment, his extracurricular activities, family responsibilities, emotional stability, etc. It is hoped that more schools will add this new dimension of "reserve power" in future evaluations.

Turning to the reverse flow of letters from the medical school to the undergraduate college, the writer cannot agree with those who suggest we should routinely acknowledge all letters of recommendation that we receive. On the other hand, it is felt that medical schools should be alert to sending special letters of real significance to the undergraduate colleges, such as copies of letters of "acceptance."

Finally, as concerns correspondence, the writer would put in a strong endorsement for occasional notes of appreciation when appropriate. For example, our admissions committee has written on several occasions to various premedical advisors thanking them for their candidness in giving us a complete, intimate picture of certain problem applicants. Conversely, our own busy routine has been brightened by an occasional letter from a premedical committee, such as the following:

> *"Many thanks for your copy of the acceptance which you had sent to Mr. . . . . .*
> *Allow me to assure you that the*

information really expedites matters on this end.

The Committee on Recommendations has directed me to indicate to you how grateful they are for your thoughtfulness."

Method No. 3—Followup Reports

Still largely in the realm of the written word is method number 3—namely, followup reports.

Here again, the recent Admissions Institute questionnaire reveals that only about two-fifths of our medical schools inform the undergraduate colleges as to which students they accept or reject and only about one-fifth send progress reports on student performance.

Even though the Association of American Medical Colleges is currently sending brief progress reports to undergraduate colleges, it is recommended that supplementary reports from the individual medical schools should also be increased. As an example, our own institution is planning to approach this in two ways: 1) by sending copies of "letters of recommendation for internship" to the undergraduate college, and 2) by reporting via a "summary record" on all students from colleges which have had a substantial number of alumni enrolled at our institution in recent years.

This latter analysis, incidentally, is proving of great help to our Admissions Committee as well. It provides in readily available form such data as the undergraduate average of the student, what his recommendations were, how he stood in his class during each of his four years at medical school and what have been his major extracurricular activities at medical school. Accordingly, when a question comes up in an admissions committee meeting as to how a particular applicant from a given school might fare with us, we are able to quickly turn to the summary sheet and see how similar students have performed. We would hope that the premedical advisor would make similar use of this followup summary in devising letters of recommendation.

In connection with these relatively formal followup reports, it is worth noting that even they cannot take the place of personal discussion between advisors and admissions officers.

Method No. 4—Conferences or "Open Houses"

Turning to a more personal, face-to-face method of liaison, we come to the use of conferences or "open houses." Here our Admissions Institute questionnaire tells us that only about 25 per cent of medical schools hold regular or frequent open houses for undergraduate college teachers; about a third hold such open houses for undergraduate students and only about a fifth invite parents to such affairs.

From our own experience with a recent conference on "Medicine as a Career"[2], which was attended by as many parents as by students and advisors, we would be inclined to encourage wider inclusion of parents in such conferences. They seem to be extremely appreciative of the information made available to them relative not only to educational and admissions matters but also to such important considerations as financing a medical education.

Another possible new emphasis in the conference method would be to put the focus directly on the "medical student" and to encourage him to participate actively in the meeting along with the premedical advisor and medical school official.

As a specific example of how this might be accomplished, a medical school might invite to such a conference representatives of all the premedical colleges which have alumni currently enrolled in the medical school. Then, in addition to the usual meetings, arrangements might be made, perhaps on a Saturday afternoon, for the premedical advisor to meet with all those students who came from his institution and to talk directly with them concerning their evaluation of the medical school, their preprofessional preparation for this particular school, and so on. Such a conference would indeed put the focus on what is really the major common bond between the liberal arts college and the medical school—namely, the "student" who has attended both!

On the undergraduate college side, there seems to be an increasing trend toward having conferences of the "career day" variety at which the medical profession is included along with other occupations. It is hoped that these valuable meetings, as well as those periodically sponsored by such organizations as Alpha Epsilon Delta, will continue to be held.

Method No. 5—Personal Visitations

Even more effective than group meetings, in the writer's opinion, is method number 5—namely, that of personal visitations. According to the recent Institute questionnaire, almost all medical schools agree to the great value of such personal visits to premedical colleges and vice versa. In practice, however, less than half of all medical schools actually visit premedical colleges and only slightly more than a third have premedical faculty visit them.

Our own experience has been that such visits to preprofessional schools are invaluable and can afford not only a chance to become better acquainted with advisors but also to combine these visits with talks to premedical groups and sometimes even to conduct interviews on the undergraduate campus.

Similarly, visits to the medical school by premedical advisors and students gives them an opportunity to not only talk with admissions officers, but also to see the facilities and to size up the general atmosphere of the school.

Either type of personal visit allows for the development of a mutual understanding and trust which can seldom be reached in any other way. For as Severinghaus, Carman and Cadbury have so well expressed it[3], "Liaison is not really between institutions but between people."

Basic attitudes

This leads the writer, in conclusion, to turn from the practical, specific methods discussed above to underline what is perhaps an even more important prerequisite for effective liaison and cooperation—namely, the existence of healthy "underlying attitudes" between medical and liberal arts colleges.

Attitude No. 1— Welfare of student and society

First, it is submitted that our primary emphasis should be on the welfare of the student and on the welfare of society and only secondarily on that of our own particular undergraduate college or medical school. With this emphasis, for example, the liberal arts college might be less apt to be either too strict or too lenient in its premedical advising and recommending. Similarly, the medical school might be less apt to proselyte a student for its own in-

stitution if he would really be better off at some other.

Attitude No. 2—Mutual trust

Secondly, there is need for what was described in "Preparation for Medical Education in the Liberal Arts College" as "an atmosphere of mutual trust" between undergraduate college and medical school. This includes honesty on the part of the medical school in describing its premedical requirements plus a willingness on the part of the undergraduate school to believe such statements.

It also involves strict adherence to the confidential nature of certain communications between the two institutions. This would include not only the letters of recommendation from the undergraduate college to the medical school but also any followup reports from the medical school to the liberal arts college, such as copies of letters of recommendation for internship. The confidentiality of such communications must be fully respected or future reports will be "watered down" to such an extent that they will be meaningless.

Attitude No. 3—Willingness to take the initiative

Finally, it is essential to have a "willingness to take the initiative" if we are to improve liaison and cooperation. Whenever we have approached an undergraduate college or whenever they have approached us relative to a visit, a followup, a conference, or what have you, the response has without fail been most positive and cooperative. The problem seems to be mainly for one or the other to go more than half way in building up the relationship.

Summary

Five major methods and three underlying attitudes for improving liaison and cooperation between medical and liberal arts colleges have been presented in the hope that they may encourage more effective partnership in the mutual task of selecting and educating the best possible future physicians.

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Hacia un mejor enlace entre los Colegios de Medicina y los de Artes Liberales.

Las Escuelas de Medicina y de Artes Liberales, participando ambas en la tarea de seleccionar y educar los futuros médicos, han de hacer todo lo posible para mejorar sus relaciones mútuas y llegar a una cooperación perfecta, dice el autor de este trabajo (Decano Asistente y Presidente del Comité de Admisiones de la Escuela de Medicina del Estado de Nueva York, en Syracuse), el cual sugiere algunas medidas prácticas para llegar a ese fin, y discute también la necesidad de un cambio en las actitudes mentales de los administradores y del profesorado de ambas instituciones.

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University of Miami School of Medicine

HOMER F. MARSH

FLORIDA'S HISTORY in the field of undergraduate medical education is quite brief, and the American Medical Association Directory of 1950 carries the following succinct resume: *"Tallahassee College of Medicine and Surgery, Medical Department of the University of Florida, Jacksonville. Organized at Tallahassee in 1883; removed to Jacksonville in 1885. Extinct in 1886."* In the Directory of 1956, second entry is noted and begins: *"University of Miami School of Medicine."*

Almost from the founding of the University of Miami, now only in its 31st year, its administration had recognized the need for and desirability of including a medical school within the organizational framework of the institution. To a young, independent, non-tax supported university, the thought of the overwhelming financial demand which would be created by the establishment of a medical school constituted a spectre from which there was no evident relief until 1951. In that year, the State Legislature, prompted by members of the Dade County delegation, provided a partial answer to the problem. Legislation which became law in July 1951, ordered the State Board of Control to pay a subsidy of $3,000 per year per student to the first medical school opening in Florida under the administrative control of a municipality, county, or nonprofit institution organized exclusively for educational purposes. This subsidy was in the nature of an operational support and none of the funds could be used in the construction of facilities nor in support of a teaching hospital.

Despite certain shortcomings of the law, the university's Board of Trustees, Dade County government officials, members of the medical community, and friends of the university were convinced it offered an opportunity to start a medical school in Greater Miami, and they pooled their efforts to bring the thought into reality by surveying potential already available in the area.

Three years before, Dade County had assumed full financial responsibility for the support and operation of Jackson Memorial Hospital which, for 30 years, had been a city-supported institution. In two elections, one held shortly before the county assumed this responsibility and the other shortly after, freeholders had voted bond issues in the amount of $8,500,000 for expansion and improvement of the hospital. By 1951, this work was well along. When it appeared possible that the university would begin a medical school, county and university officials began the preparation of an agreement whereby Jackson Memorial Hospital would

Dr. Marsh is dean of the University of Miami School of Medicine.

become the primary clinical facility for a school. The county agreed to continue the financial support of the hospital, and provided for the professional aspects of the hospital to come under the control of the university and its school of medicine.

A second arrangement was completed between the university and the Veterans Administration. This permitted the university to lease and remodel an unused building on the reservation of the Coral Gables Veterans Administration Hospital as a temporary facility for housing the preclinical departments of a school.

Having reasonable assurance of rather major financial support for operation; a potential teaching hospital in its control; and a facility to be converted into laboratories and classrooms necessary for preclinical instruction; the university's board of trustees, on March 10, 1952, arrived at a decision to open a school of medicine. This was eight months after the subsidy legislation became law, and it was assumed that funds appropriated to carry out terms of the subsidy for the biennium of 1951-1953 would revert to the State's general treasury unless a claim were made against them before June 30, 1953. Inasmuch as it would be necessary to have a school in operation before a claim could be filed, the university imposed a time deadline of Fall 1952 for opening a school. Despite difficulties, this deadline was met and 28 students and four full-time faculty members were on hand when the school opened September 22, 1952. This was a few days more than six months after the trustees' action and only seven weeks after the arrival in Miami of the school's first administrative officer.

In retrospect, there are many occasions when those who have been intimately concerned with the school from its beginning are convinced that the circumstances of its initial establishment could well serve as a pattern for other communities to follow in providing sorely needed medical schools by utilizing potential already existing in the community and with a minimal capital investment. On other occasions, however, all are certain that no other group should be called upon to face the rigors imposed by such an unorthodox and austere beginning as this was.

From the beginning, the school's administration and faculty has had to work under the ever-present pressures of inadequate time for planning, restricted financial resources, and the necessity for selling a potential rather than a reality. It is to the credit of those members of the faculty who joined the venture early in the conviction that there was a unique potential for the future that the school is in its sixth year of operation. During its fourth year, it received approval of the accrediting agencies and now is a full member of the Association of American Medical Colleges.

In order to establish a comprehensive picture of the present status of the school a few statements concerning its integral parts may be presented as follows.

Student body

Although terms of the subsidy legislation provide that 10 per cent of the student body may be non-residents, this privilege has not been exercised in the classes now in attendance. The new class, selected for admission in 1957, will include five such students, however, along with 75 residents. There has been a stepwise increase in the size of each new class up to the 80 students to be admitted this year and it is planned

that the maximum class-size will be 80 or 84 students.

Faculty

This group consists of two segments: a number of instructors who are salaried by the university, housed in the preclinical and clinical facilities, and expected to render full-time to instructional and research programs of the school; and a large number of practicing physicians of Dade County who contribute their time and efforts to the school on a strict voluntary basis. The salaried group is permitted to supplement basic salaries by a limited amount of extramurally derived income including services to private patients referred to them by licensed physicians. During the current academic year, about 100 full-time men and more than 450 voluntary members constitute the total faculty group. Each of the school's departments is directed by a full-time chairman and the chairmen of the clinical departments also are "chiefs" of the hospital's services and have the responsibility for supervising the care of charity patients.

Administration

Administrative activity centers in the dean who is, in essence, an officer of the executive committee of the faculty. It is this group, consisting of the dean, associate dean, chairmen of the major teaching departments, and the executive director of the hospital, which makes the policy for general development and operation of the school. All matters of strictly clinical import are channelled through the medical board of the hospital which is under the chairmanship of the dean and has the responsibility for making policies governing professional aspects of the hospital. This board consists of the dean, associate dean, chairmen of six major clinical departments, and two administrators of the hospital plus five members of the attending staff of the hospital who are elected by the staff.

Although fully aware of the arguments for and against the committee system, our group believes it necessary to draw various segments of the faculty into the development of programs and policies of the school through the mechanism of committees, and a number are constantly active.

Having the excellent assistance of an associate dean, an assistant dean who handles student affairs, the executive committee of the faculty, and a number of standing committees, it might seem that the dean has little to do except to sit back and watch the development unfold. In one way or another, however, he seems to become involved as father confessor, marriage counsellor, public relations expert, fund-raiser, architect, referee and general handyman in his wrestling with the basic problems of students, faculty and budgets.

Facilities

At the time of the school's opening in the "temporary" quarters in Coral Gables, Dade County set aside $2 million as a contribution to permanent buildings for the school. As a first step, approximately one-half of this fund was used in the construction of a new Outpatient Clinic Building to provide adequate facilities for the fourth-year teaching program. This building was completed and occupied during the summer of 1955. The remainder of the contribution is being held until such time that the

university can erect an education building. It is hoped that this will be done within the next year. In the meantime, the preclinical departments are continuing to use the "temporary" facility while the clinical departments are housed in the hospital.

In December 1957, construction will be started on a medical research building as the second step in the program to provide permanent quarters. This building, partially financed from funds established by Public Law 835, is designed to become a wing of the future educational building. By providing about 100,000 square feet of floor space, departmental research activities which are now scattered in several areas can be centralized. Very recently, some relief in this direction was made possible by opening a remodelled building adjacent to the hospital and which includes general facilities including an experimental surgical laboratory, biochemical laboratory, steroid chemistry laboratory, radioisotope area and tissue culture unit.

The teaching hospital, Jackson Memorial, is county-owned and tax-supported and both private and staff patients are admitted on a 50:50 ratio to the number of about 30,000 annually. Its 844 beds and 80 bassinets provide a wide range of clinical material for instruction and research since it is the only major hospital of the area offering more than token services to staff patients. All services, including psychiatry, tuberculosis, and infectious diseases, are offered in the hospital's facilities. Two of the heaviest services are those of the emergency clinic and the outpatient clinics, both of which are used in the instructional work for undergraduates and graduates. These two services accommodate in excess of 200,000 visits per year.

The rapidity with which the Greater Miami area has grown during the past ten years has far outstripped the ability to provide adequate hospital resources and several moves are underway to relieve this shortage. At least two independent groups have made plans to build hospitals of 200 and 300 bed size adjacent to the Jackson Memorial Hospital. In addition, the freeholders have voted an expansion program for Jackson Memorial Hospital itself which will cost $6 million and which will provide about 300 to 350 new beds, a new emergency clinic building, expansion of the clinical laboratories, a new morgue and medical examiner's suite and improved resident house-staff housing among other improvements. Two independent health agencies, the Cerebral Palsy Association of Miami, and the Society for Crippled Children and Adults, have completed rehabilitation centers at the hospital's site. By agreement between these organizations and the school, these facilities will be incorporated, administratively, to form the nucleus of a comprehensive physical medicine and rehabilitation center to be utilized by the school.

There is no paucity of patient material to be used in the teaching of undergraduate and graduate students, and the school has not found it necessary to extend its undergraduate activities into other hospitals of the area.

Inasmuch as the primary *raison d'etre* of any medical school can be justified only in its instruction to medical students, it is well to turn to some "thumbnail" sketches of these activities to give a broad idea of the thinking of the school's administration and faculty. In reviewing these aspects, it is well that the peculiar circumstances of our beginning be kept in mind. Recall if you

will that there was no two- or three-year period of planning prior to the actual opening of the school. As operation and planning had to be carried along simultaneously, our position is somewhat similar to that to be found in older established schools in which changes have to be designed and approached without disruption of programs already in operation.

Correlation and integration

It is our basic thought to offer the student an opportunity to participate in an educational experience of such breadth as to permit him an introduction into the several broad facets of medicine. In guiding him through this experience, it is hoped that he will come to recognize his capabilities and, more important, his limitations in order that he may make an intelligent choice as to the future sphere of activity for himself. Whether this choice will involve the practice of medicine, teaching and/or research in one of the fields open to him, or a combination of these, rests on the stimuli which he receives as an undergraduate and graduate student.

In taking cognizance of the ever-changing techniques of implementing this educational experience, our group was not satisfied to adhere to the time-honored "vertical" programming; neither was it ready to accept completely the newer "horizontal" approach. Instead, it is obvious that somewhere between these two limits, there lies an area of compromise to which reference is lightly made as the "45 degree angle" area. In developing a curriculum in this area of approach, it is recognized that sufficient instruction and guidance must be provided in the basic medical sciences to identify them as disciplines and beyond this basic effort, guidance must be offered to show their inter-relationships and total impact in clinical applications.

In the broad plan of instruction, first- and second-year students are kept in constant contact with the preclinical disciplines while third- and fourth-year students spend their major time in contact with patients of the hospital's in- and outpatient services respectively. To this extent, the curriculum follows the "vertical" approach. In actual conduct, however, the differences become apparent.

First, the programs of the first two years are organized in a manner permitting close integration and correlation of activities involving the various preclinical departments. This is accomplished by the departments responsible for a year's work coming together at frequent intervals to consider the important areas of a specific discipline to be presented and then arranging this presentation to permit interdepartmental correlation of time and effort. In carrying the arrangement through, there is a free interchange of personnel as desirable for most effective and efficient presentation, and interdepartmental or combined conferences are held for comprehensive coverage of specific areas of subject matter. Second, and because of the correlative effort, the work of a year is not broken into semester blocks with hard assignment of time. This allows a greater flexibility of operation according to the need to expand or condense certain aspects of a discipline. Thus, a single department may carry a rather major portion of the activity for a period of time only to drop out as another aspect comes into focus and then reappear as necessity dictates. Third, in keeping with the attitude that the basic disciplines are tools in

the composite pattern of clinical medicine, it is necessary to point up their proper perspectives as they relate to clinical applications. Two mechanisms are used to accomplish this end. Clinicians are brought into the teaching of preclinical departments wherever possible in order that there may be a tie between the discipline and the clinical applications. It is more meaningful if that tie can be demonstrated by one who makes such applications in his daily work. A second means of carrying this thought into action is provided by "clinical correlation" conferences in the first-year program. As the week-by-week work of the various departments progresses, a member of the full-time clinical faculty follows this work very closely. At weekly intervals, he arranges a panel of preclinical and clinical members to discuss the interrelationships of the basic disciplines with clinical situations exemplifying specific relations as they may have occurred during the work of the week. The conferences usually include a patient to illustrate the situation under discussion and care is exercised not to go beyond the immediate comprehension of students at this level. Students are encouraged to participate in the sessions with questions and comments.

Essentially the same format is used for the program of the second-year class as that used in the first-year teaching. There is, perhaps, an even greater participation of clinicians in the work of this year, and as in the first-year, "correlation conferences" are held weekly to draw the various facets together. Participants in these conferences are drawn from the preclinical and clinical areas and, unlike the conferences of the first-year, they are directed to a higher level of complexity with all students except the first-year group being required to attend.

Preventive medicine

Illustrative of close integration is that involving preventive medicine. In developing present arrangements for this area of interest, it is recognized that the major importance of preventive medicine instruction lies in the establishment of an attitude in the student through which attention is focused on the individual as a unit within the community rather than as an isolated unit. It was believed that the responsibility for developing this attitude could well be that of each and all departments, yet, in a practical consideration, it was expected that to entrust this function to all departments would result in none giving it proper attention. It was agreed that some individual or group, oriented in the attitude of preventive medicine, had to be charged with the responsibility for guiding emphasis in this field. Thus, a section of preventive medicine was organized in the department of medicine, and the various departments gave assurance of cooperation with members of the section.

Three full-time members, having varied backgrounds in preventive medicine and public health, keep close contact with programs of all the departments and as appropriate opportunities present themselves, these men guide particular emphasis to the preventive aspects of a subject area under discussion. This amounts to a number of hours each year, and in addition, special information considered to be within the scope of preventive medicine and public health but not covered in any department is presented in blocks of time specifically earmarked for the section. In all instruction, voluntary men

from various governmental and independent agencies having interests and responsibilities to preventive medicine and/or public health are brought into the teaching. In some respects, the members of the section are a "floating" team, being found one day involved in one department's activities and in another department at a later time.

Special aspects of clinical instruction

Previously mentioned is the fact that third- and fourth-year students are assigned to the inpatient services and the outpatient clinics respectively. This is fairly typical of the arrangements in other medical schools and it is our thought that no emphasis in the specialty areas be made during the third-year instruction, reserving such emphasis until the fourth-year program. All effort is made to minimize the amount of time designated for all-class sessions and to permit the students to devote major effort and activity in patient contact. A few unusual facets of the instruction in these years are worthy of some description.

To give students some insight into patient-physician and physician-physician relationships, a system of cross-communication between students of the third- and fourth-years has been established on a trial basis. The results have been gratifying enough that it is planned to extend this activity during the next academic year. The plan operates as follows. If a patient, seen in one of the outpatient clinics by a senior student, is admitted to the inpatient service, the senior student is responsible for preparing a resumé of the patient's difficulty and what has been done in the clinic contact. This is transmitted to the junior student who is assigned the patient in the inpatient service. As this student cares for the patient he keeps the senior or "referring" student informed as to the patient's progress and ultimate discharge by means of periodic progress reports transmitted to the senior student. In the same manner, patients first seen in the inpatient services and then discharged to return to the clinics for follow-up are "referred" to the student in the clinic. This student then is responsible for keeping the "referring" student informed of the patient's progress and ultimate disposition.

Another interesting development was started two years ago on a small scale and has now created pressure to institute it throughout all the clinics. Beginning through the interest of a few general practitioners who wished to participate in the activities of various clinics directed by the department of medicine, the program has grown to include more than 50 such men and others have expressed a desire to come into the work when facilities permit. The program was organized in the thought that the students should have some opportunity of contact with the general practitioner as a part of the comprehensive educational background. The general medical clinic functions each day and each day, several general practitioners are included in the team seeing patients. The clinic is under the direct responsibility of an internist at all times. During the sessions, patients are seen by the general men and by students who together handle the varied diagnostic and therapeutic problems presented except in unusual instances in which the internist may be consulted. This gives the student an opportunity to see the general practitioner at work

in much the same manner as he would be conducting his office practice. At the same time, the general practitioner has the opportunity of imparting some of his broad information and experience to the student. At the end of each clinic session, a conference is held which includes the general men, students, and the internist in charge of the clinic. Selected cases of the day are discussed in some detail with the internist taking an active role. In this manner, the student can come to recognize the relationships between the general practitioner and the specialist while the general practitioner benefits from his contact with the specialist. Physicians who have participated in the program have expressed the thought that it is comparable to a continuing postgraduate course in medicine. As has been indicated, thought is being given to the possibility of expanding this activity to other types of clinics such as pediatrics, obstetrics, and certain of the surgical specialties.

A third area which, perhaps, carries more immediate interest because of the location of the school is that concerned with the elder age group of citizens. The attraction of this part of the country for individuals in the upper age brackets is well known and while many of these "senior citizens" are able to make a positive contribution to the life of the community, others become a definite responsibility and need attention. Their problems are not always medical in nature but may involve economic, social, psychological or medical facets. In the knowledge that there are many problems peculiar to this age group of the population one of the voluntary members of the faculty became interested in developing an approach which might yield help and understanding of these problems. With minimal assistance, a special clinic was organized in which selected "senior citizens" were referred for resolution of difficulties not strictly medical in nature. This clinic has been thought of as a "comprehensive" clinic or "total push" clinic and is manned by a team consisting of internists, psychiatrists, psychologists, social workers and welfare workers. Patients seen therein are studied from all aspects during a series of visits. When the study is far enough along, the team meets to discuss various findings and to recommend a remedial course for the patient. The latter may involve the correction of some simple medical situation, finding more suitable and pleasant living quarters for the patient, guiding him into different types of social contacts than he has had, providing for psychiatric attention to an emotional problem, or, perhaps, devising some way in which financial relief may be provided. In the execution of the recommendation, various community resources are brought into the picture for special types of assistance.

The clinic's work has excited comment and interest in sections of the community and only recently, the university has recognized the value of a multidiscipline approach to the problems of this age group and has supported the establishment of a university-wide Gerontology Council. Basic objectives of the Council are to encourage greater attention to the "senior citizen" as a member of the community, and to act as a correlating body in the stimulation of research interest and support in the several fields encompassed by gerontology.

The foregoing pages present only a brief description of the background

of the school's establishment and a few of the programs concerned with the educational aspect of the institution. Although no mention has been made of the research activities being carried by the faculty, this is not meant to imply that this field of contribution is being neglected, for indeed, the financial support of investigational programs of the school of medicine account for almost 50 percent of the total research support of the entire university. Almost daily, such activity increases and as the facilities become available for greater expansion, this will certainly come.

It is a certainty that those who have come into this development from other established schools have done so in the recognition of potential for future development and the uncovering of this potential is just now beginning. The next few years shall be marked by an increasing tempo of activity from this area of the nation. It is the thought of our group that the school of medicine, through its primary and secondary obligations, will become the hub of medical education and research in this geographic locale, essentially the last frontier of our country.

La Escuela de Medicina de la Universidad de Miami

Desde el momento casi en que fué fundada la Universidad de Miami, hace treinta años, su administración había reconocido la necesidad de incluir en sus planes la organización de una Escuela de Medicina. Sin embargo, estando dicha Universidad mantenida con medios privados, no fué posible llevar a cabo ese plan hasta que, en 1951, la Legislatura del Estado de Florida otorgó un subsidio estatal para el establecimiento del primer Colegio Médico en ese Estado. El presente trabajo es un informe sobre la fundación y desarrollo de dicha Escuela, y una descripción de algunos de sus programas de enseñanza. El autor (Decano de dicha Escuela) advierte que, aunque no discute en este articulo las actividades de investigación llevadas a cabo por la Facultad de Medicina de la Univ. de Miami, ello no quiere decir que ese campo esté siendo descuidado. Por el contrario, los fondos asignados a la investigación médica constituyen casi el 50% del fondo total de ayuda para la investigación que recibe la Universidad. La joven Escuela de Medicina de Florida tiene un gran futuro, según cree el autor, y se puede prever que en años próximos tendrá lugar un incremento considerable de todas sus actividades.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

Adventures in Medical Education

GIDEON S. DODDS

AT THE BEGINNING I wish to express my deep appreciation for the honor of being invited to deliver the eighth annual Alphonse M. Schwitalla lecture at Saint Louis University. My gratification is due partly to the fact that in 1910-11 I was on the teaching staff of this medical school, organizing a course in zoology for premedical students, and that Alphonse Schwitalla was a student in that class. During the years since that date I have followed with great satisfaction the distinguished career of Father Schwitalla, both in this, his own university, and in the broader reaches of medical education. It is my great pleasure to add my personal tribute to that of Alpha Omega Alpha.

In my remarks I propose to trace the development of medical education in the United States, and to show that the present standards of this medical school, and of others in our country, are the result of a long line of development, including a remarkable series of adventures.

This development falls into three main phases: *first*, a long period of unregulated growth, up to about the year 1900; *second*, a period of rapid reorganization from 1900 to 1920; and *third*, a period of sound stability from 1920 to the present date.

A. The Period of Unregulated Growth

Colonial days

With the earliest settlers in our country, along the Atlantic Seaboard, came a few physicians from England and other countries. In caring for sick colonists, these doctors made use of the limited medical knowledge of those early days. As the population increased, additional doctors were provided, partly by later immigrants with medical training, partly by young men who returned from the colonies to Europe for study, and partly by men trained by apprenticeship to physicians in the colonies. For over 150 years, these sources supplied such medical service as the scattered colonists had.

The earliest medical schools

Toward the close of colonial days, shortly before the country attained its independence, two medical schools were established.

The first of these schools was opened in 1765 in Philadelphia as a part of the College of Philadelphia,

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later the University of Pennsylvania. Three years later (1768) this adventure bore fruit in the granting of 10 medical degrees to the first doctors graduated in this country.

In 1767, Kings College in New York City established a medical department. This later became associated with Columbia University. Except for suspension for a few years during the War of the Revolution, these schools have given continuous service to the present day.

Following the close of the war, before the end of the century, two other medical schools were founded, Harvard in 1782 and Dartmouth in 1797. These four medical schools are the prototype of a series of stable medical schools which were established in the years to follow, these schools being organized as divisions of universities and colleges, either private or public. Such schools were set up on the regular university standards with respect to admissions and scholarship.

The origin and rise of the proprietary medical schools

But unfortunately, before long there entered adventurers of a very different sort, with ideals very far removed from those which prompted the founding of the four schools just mentioned. This led to the establishment of independent schools, organized primarily for the purpose of making money, and dependent wholly on the fees paid by the students. Effective medical schools never have been maintained on this financial basis. The earliest school of this type was in Baltimore in 1807.

In the next century, schools of this type multiplied far more rapidly than did those connected with universities. Up to the year 1900, a total of about 450 medical schools had been organized, the great majority of this kind. Many of them were of short duration. By 1900 there were 160 medical schools actually in existence. (Figure 1 shows the net increase in number of medical schools to that date.) About one-half of the 160 schools had no connection with any university and some of the alleged connections were in name only. During those years the independent, money-making schools presented a very serious threat to the soundness of the whole project of medical education in this country.

In these schools, professorships were bought and sold; students were secured by misleading advertising and high pressure methods. Teaching was almost wholly by lectures. There was very little dissection and laboratory work. Contacts with patients were wholly inadequate. The training period was short — two scant years or less. Some of them were night schools and some were wholly fraudulent, being characterized as "diploma mills."

Entrance requirements were practically non-existent, except the willingness to pay the fee, though most of them did claim to require high-school graduation or its "equivalent." The equivalent usually was the tuition fee.

Unfortunately, since those schools were chartered by the states, the M. D. degrees from them carried the right to practice medicine, inasmuch as state licensing boards were a later development.

It is of local interest to note that in the multiplication of medical schools of the commercial type, there was a special concentration in Illinois, Missouri, Kentucky and Tennessee. In these four states in 1900 there were 46 schools. Today there are 11. These four states, along with Maryland, were described as "especially rotten spots," inasmuch as

only six of the 54 schools in the five states could be considered as acceptable.

As an indication of the low state of medical education and practice in the earlier years, a recent number of the Journal of Medical Education quotes a letter written by a medical student in one of our midwestern states in 1859, which closes with this: . . "I do believe anybody is a fool to undertake to practice medicine without attending at least one course of lectures."

In that period, however, there were some young men who recognized the weakness of the system and went to England or to schools on the Continent for medical training. These men brought back better medical skill and higher ideals. Their influence was a leaven working on the medical profession of the country, toward the betterment of medical education.

The growth of the university-connected schools

As previously mentioned, there were along with the independent proprietary schools, a smaller number which were parts of universities in a full and true sense. They tried to maintain sound educational standards in keeping with the general ideals of the institutions.

These schools encountered the difficulty produced by the unethical competition by the schools of the other sort. This brought an inevitable lowering of standards, a tendency which few were able to resist. In 1900 less than one-half of the 160 schools were of the true university type, though others had nominal university connections. It would be illuminating to trace a line on the graph (Figure 1), limiting these schools, but data are not readily available for more than a rough guess at its position.

Efforts to improve medical education

In spite of the wide-spread existence of schools of the low type, there were, through the years, some physicians and medical educators who were keenly aware of the deficiencies and who believed that something ought to be done to bring about a change. This feeling led to a series of adventures which had far-reaching consequences. Let us review briefly several of the forces and organizations which were brought to bear upon the situation.

The founding of the American Medical Association, 1846

It was this feeling on the part of some members of the Medical Society of the State of New York which led, in 1846, to the organization of the *American Medical Association*. The effective move to this end was sparked by Dr. Nathan Smith Davis of Binghampton, N.Y., at that time a young man of 29 years.

The prime objective in the formation of this organization was the improvement of medical education. The first convention passed a resolution "that a uniform, elevated standard of requirements for the M. D. degree should be adopted by all medical schools in the United States."

This convention was the beginning of a long series of organized efforts to improve medical education, efforts which never have ceased, and which today, still look toward the future in a continuing program to appraise the needs and to plan the means for meeting these needs.

For a long time progress was very slow, indeed seemingly negligible. For the next half century and more, the formation of schools of the undesirable type went on at an accelerated speed. They continued to be good financial ventures.

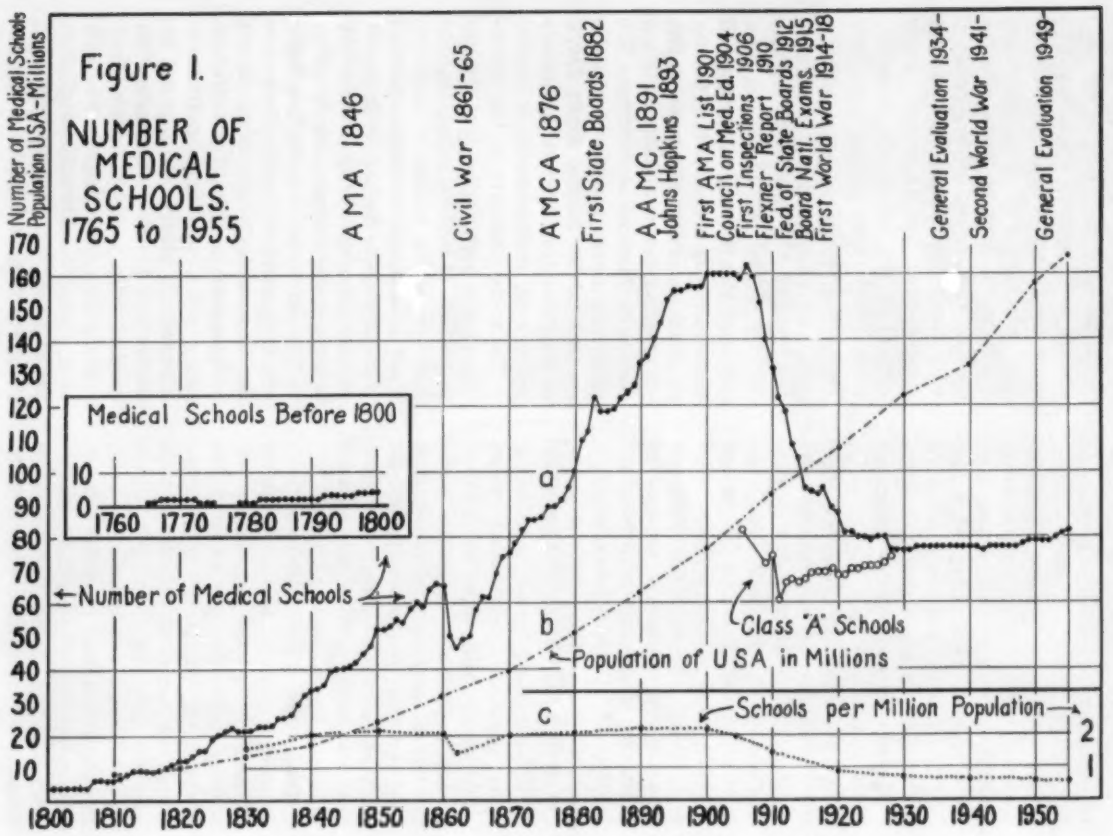
Figure 1.
NUMBER OF MEDICAL SCHOOLS. 1765 to 1955
Number of Medical Schools
Population USA-Millions
AMA 1846
Civil War 1861-65
AMCA 1876
First State Boards 1882
AAMC 1891
Johns Hopkins 1893
First AMA List 1901
Council on Med. Ed. 1904
First Inspections 1906
Flexner Report 1910
Fed. of State Boards 1912
Board Natl. Exams. 1915
First World War 1914-18
General Evaluation 1934-
Second World War 1941-
General Evaluation 1949-
Medical Schools Before 1800
10
0
1760 1770 1780 1790 1800
a
b
c
Number of Medical Schools
Class "A" Schools
Population of USA in Millions
Schools per Million Population
2
1
170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10
1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950

Figure 2.
NUMBER OF STUDENTS and GRADUATES. 1880 to 1955
Students per Million Population
320
300
280
260
240
220
200
180
160
140
e
Number of Students
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
d
World War II
Graduates per Million
70
60
50
40
30
20
10
0
g
Number of Graduates
7,000
6,000
5,000
4,000
3,000
2,000
1,000
f
Gained One Class
Acceleration
Years
1880 1890 1900 1910 1920 1930 1940 1950

In seeking higher standards at which to aim, reference was made to the better schools of England, Germany and France. As a means of attack, the American Medical Association appointed committees on medical education, which gradually evolved standards, simple enough at first, but obviously proper and potentially effective. It was not sought to attain the highest levels immediately, but rather to set ever higher goals, which should be striven for as immediate objectives were attained.

The standard, as stated in 1905, urged a high-school education for admission (same as for admission to the university), and a five-year medical course, the first year being the equivalent of part of the premedical science training of the present day. A sixth or intern year was also urged.

At the time the American Medical Association was organized in 1846, this level would have been considered as impossible of attainment. At the present time (1956), it seems very conservative.

The founding of the Association of American Medical Colleges—1876 and 1891

Another organization which has worked for the same goal as the American Medical Association, but from a different vantage point, is the *Association of American Medical Colleges*. The earliest call for a convention went out from Louisville, Ky., over the signatures of six prominent medical educators. The object of the convention was given, "to consider all matters relating to the reform of medical college work." The first convention was held in Philadelphia in 1876. It was attended by representatives of 22 of the 89 medical schools then in existence. Thus was born the *American Medical College Association*. It disbanded in 1882 and was reorganized in 1891, under the present name.

In subsequent years, this organization has worked both independently and in cooperation with the American Medical Association in the quest for better standards. As time went on, the qualifications for membership in the Association became more stringent, and at the same time, membership became more to be desired as a badge of respectability.

Through many years, the *Southern Medical College Association* was an effective partner in the program for the improvement of medical education.

The origin and development of State Boards of Licensure—1882 to 1908

Another event of great potential significance was the organization in 1882 of *Licensing Boards* in two states. The idea caught on and 26 years later, (1908) the last of the states had established such boards. The holding of an M. D. degree from some medical college no longer was sufficient to admit the holder to the practice of medicine. And soon the boards came to require, as one prerequisite, a certain minimum of medical education in a school of recognized standing.

Johns Hopkins University School of Medicine, 1893

Another adventure in medical education was the founding of *Johns Hopkins Medical School* in 1893. This came at the time when the number of low-standard, independent schools was nearing its peak, and when university-connected schools were feeling the strong pull in the downward direction. The opening of that school, with its requirement of a college

degree for admission, and its entire educational program on the graduate level, was indeed an adventure. The significant fact is that it established a pattern which had far-reaching influence in raising the level of medical education in this country. It gave great encouragement to other schools which were striving to maintain high standards.

B. The Period of Reorganization

By 1900 the American Medical Association had developed a useful technique, that of *publicity*. The issues of the Journal since its founding had included many informative and challenging articles and reports on medical education, among them the reports and membership lists of the Association of American Medical Colleges and the Southern Medical College Association.

In 1901, for the first time, the Journal published a complete list of the 160 medical schools then in existence. These descriptions, as was recognized at the time, did not have much power, because they were derived from catalog material and from reports received from the schools themselves. Nevertheless, it was the start of a plan which had great potentialities.

In the same issue, a summary of the gains during the 55 years since the founding of the American Medical Associations reads thus:

"Unsatisfactory as the condition of medical education in this country has been in the past . . . there is ample reason for encouragement. Twenty-eight years ago there was but a single medical school in the country with more than a two-year course . . . Now there are but two in the country which do not demand, or profess to demand, four years of attendance. . . . Medical education in this country is a different thing from what it was two decades ago, and there is every prospect that the progress of the recent past will continue in the future."

This quotation indicates a substantial beginning of progress.

The formation of the Council on Medical Education—1904

The next significant step taken by the American Medical Association was the formation in 1904, of its permanent *Council on Medical Education (and Hospitals)*. The members of the original Council were strong men, and under the leadership of Dr. Arthur Dean Bevan, the new body prosecuted the work with vigor. At that time the opposition was weakening. The goal was to bring it speedily to the breaking point.

The first inspection of medical schools—1906

As a means of learning the real facts about medical schools, the Council, in 1906, carried out the *first general inspection of medical schools*. On the basis of the information thus gained, the Council classified the schools in an "A, B, C" scale, the meanings being: "A," acceptable; "B," needs general improvement; "C," not acceptable without complete reorganization. The classification was not made public, but each school was informed of its own standing. The number of schools in each group was: "A," 82 schools; "B," 46; "C," 32.

The "Flexner Report" of the Carnegie Foundation—1910

As a further means of getting results, the Council asked and received the cooperation of the *Carnegie Foundation for the Advancement of Teaching*, which at that time, was especially interested in higher education. In 1908, Dr. Abraham Flexner from the Foundation and Dr.

N. P. Colwell from the Council, began a series of visitations, which covered all of the 148 schools of that time (including schools of osteopathy, not previously or since, included in the reports of the American Medical Association).

In 1910, the report, a book of 346 pages was published. This was the famous "Flexner Report." The accounts of the individual schools were frank and fearless, giving plain descriptions of all schools, good and bad. Many of the schools were unbelievably inadequate.

This report of a disinterested body was received with mingled feelings, the nature of the feeling being determined by whose toes were tramped upon. Its effect on the course of medical education was immediate and pronounced. It gave great strength to the position which had been held by the two associations. It is hard to over-emphasize the importance of this report.

Classification of schools by the Council on Medical Education—1910

The Flexner Report was followed promptly in 1910 by a report from the Council, including a list of the Class "A" schools, 72 in number, as revealed by the recent inspection. This list proved to be a valuable supplement to the Flexner Report.

Students and graduates, 1880 to 1910

At this point it is of interest to review certain statistical items for the 30 years immediately preceding the Flexner Report. The rapid multiplication of schools noted in earlier pages, had ceased by 1900, after which a decline had begun. The maximum number of students and graduates was reached in 1904 (Figures 1 and 2).

From 1880 to 1904 the population of the country increased by 66 per cent, and the number of medical schools by 60 per cent. In the same years the total number of medical students had grown from 11,826 to 28,142, a gain of 140 per cent, more than double the population growth rate. This high increase in total medical students was due in part to the lengthening of the medical curriculum from about two years to four years, so that in the latter years the student counts included four classes instead of the former two.

In the same period of time, the number of graduates increased from a yearly 3,214 to 5,747, a gain of 78 per cent, a percentage gain a little larger than that of the population and the number of medical schools.

The preceding figures give a background for the appreciation of the events now to be described.

The events of the first decade following 1910

The year 1910 brings us up to the time when the man honored in this lectureship was making his first contact with medical education, a field in which he was later to become outstandingly useful. The year 1910 was also a significant turning point in the reorganization of the medical schools in this country, as will now become evident.

Almost immediately after the publication of the Flexner Report and the listing of the Class "A" schools by the Council, a Class "A" rating and membership in the Association of American Medical Colleges became a "must" for medical schools and other new forces soon became operative in supplementing the efforts of the two associations.

In 1912 the *Federation of State Boards* was organized. This made possible a fuller cooperation of the

boards in the formulation of standards. In 1915 the *National Board of Medical Examiners* was formed, and the results of its examinations soon became widely recognized by state boards. These cooperative ventures made possible a higher degree of uniformity of standards and procedures throughout the country, so that there soon remained no areas where graduates of unapproved schools might find places. As a result it came about that proprietary schools with low standards no longer were financially profitable. Faced with this limitation, schools of this type were closing more rapidly than new ones were being opened.

During the 10 years following 1910, the two associations were working vigorously to induce schools to measure up to the prescribed standards. Medical schools had come frankly to recognize the position of these two associations as *accrediting agencies* and were striving to win their approval. Numerous inspections were the order of the day, and they were awaited with uneasiness in many schools. Changes of classification were frequent.

In this visitation program, a number of representatives of the associations participated, outstanding among whom were Dr. N. P. Colwell from the Council and the late Dr. Fred C. Zapffe from the Association of Medical Colleges. Later Dr. William D. Cutter replaced Dr. Colwell. These men became well-known among the medical schools of the country.

As a result of this activity the excellence of medical education improved rapidly. The improvement was due to the interaction of two factors, (1) the improvement of many medical schools to meet the required standards, and (2) the closing of schools which were unable to develop the required strength. So it came about that the reduction in number of medical schools which had begun in 1907, progressed rapidly until in 1920 there were only 87 schools in contrast to the 160 in 1900, a fall of 46 per cent (Figure 1). This reduction in the number of medical schools also involved a corresponding decrease in the number of medical students (from 28,142 to 13,052 in a period of 15 years—a fall of 54 per cent). And, of course the number of graduates also decreased in like proportion (from 5,740 to 2,529, a drop of 56 per cent). (Figure 2.)

It should be remarked at this point that nearly all of the schools which survived the reorganization period were connected with universities. Only a very few of the independent schools were able to qualify and a few of these are doing good work at the present time.

By 1920 the medical schools of the country were, for the first time and after years of struggle, on a reasonably sound basis. And it is worthy of note that this revolutionary improvement was accomplished almost wholly by the medical profession itself and was in no sense due to governmental regulation. Nor did the two accrediting agencies have any punitive power except indirectly, as the state boards came to accept their classification of medical schools as indicating fitness of candidates to take examinations for licensure.

The statement that reform came from within the profession, including the medical schools themselves, does not imply that every medical school set out wholeheartedly to reform itself. On the contrary, while there was much of willing and intelligent cooperation, the administrations of many schools lacked the knowledge or the motivation to do anything on a high plane of educational or ethical excellence.

C. The Period of Sound Stability

The consolidation of gains

The outstanding gains which were consummated by about 1920 were, at the last, brought about rapidly and under considerable stress. By that date there had emerged a new system of medical education, radically different from that of a few decades earlier, and it is worthy of remark that it was different from that of the parent European countries to which our earlier educational leaders had looked for standards.

But it was evident that there still were some weak spots which should be strengthened. For example, even in 1920 there still persisted a few of the weaker schools (Classes "B" and "C"), which in the next few years either improved or closed. Indeed it should be noted that the organization of new proprietary schools and "diploma mills" continued stubbornly, though at a reduced rate, even up to the middle '20's. It should also be pointed out that the Class "A" school of 1920 and later was a better school than the Class "A" school at the first classification in 1906. In the late 20's the Council ceased to classify schools, and designated them as approved or unapproved.

Significantly enough, the higher standards which had come to be expected made medical education more costly than ever before, and this presented serious problems to schools, whether supported by taxation or by private generosity. This is a far cry from the time when medical schools might be organized for the purpose of financial profit.

In carrying out the policy of continued improvement, the accrediting agencies continued to scrutinize the individual schools. At the same time, these two organizations, by their national meetings and their publications, developed and circulated information of great value to the individual schools in planning their own programs.

The survey of 1934 to 1936

As a part of the program of watchfulness, there was planned and carried out in 1934 to 1936 another general survey and evaluation of medical schools. This inspection was designed partly as a check upon the schools and partly as a means of gathering information as to modern methods and problems. This was commonly known as the "Weiskotten Survey."

As was to be expected, it was found that some schools had become lax and had admitted more students than their facilities justified or had otherwise failed to maintain standards. In fact about 20 schools were somewhat below the acceptable standard. No school had to close however, and soon the general level was clearly higher than before the inspection.

The survey of 1949 to 1953

A more recent evaluation of medical education in our country was carried out in 1949 to 1953. This resulted in the accumulation of much useful information and, gratifyingly enough, it did not reveal any conspicuously weak schools.

The number and capacity of medical schools since 1920

The statistics of the years show that since 1921 there has been little change in the number of medical schools, the number remaining at approximately 80 for most of the years, which is less than 50 per cent

of the peak level in 1906 (Figure 1). A slow increase is noted beginning in 1948, and the organization of a few entirely new schools now promises a total of 85 by 1960. The expansion now under way of some of the two-year schools to complete four-year programs will also serve to increase the functional capacity of our system.

It is worthy of note at this point that while the number of schools has showed little change during these years, the capacities of the schools have increased, so that the total number of students in training rose from a low of 13,052 in 1919 to a high of 28,583 in 1954-55, a gain of 106 per cent. More significantly still, the number of graduates increased from 3,047 in 1920 to 6,977 in 1955, a gain of 113 per cent (Figure 2). It is a satisfaction to recognize that this increase in the capacity of our medical schools was accomplished at the same time that improvement of standards of admission and teaching were being developed.

Resumé

The foregoing recital makes it clear that our system of medical education did not just "grow," but was, on the contrary, the result of careful planning. This has resulted in a complete reorganization of our earlier assemblage of medical schools which were the product of unplanned and unregulated growth. This reorganization has salvaged from the earlier schools their best members, and from this remnant has built the present system.

But it should be pointed out that the reorganization program did not include the several schools belonging to the "medical sects," which at no time came under the immediate influence of the accrediting agencies, and only to a limited extent of the state licensing boards. Schools of this type still exist but they are entirely outside the area covered in this paper.

Having now completed the chronological history, let us review certain special features of the events of the years and comment briefly upon their influence on medical schools in their relation to the needs of the country.

The First World War—1917-18

The story of medical education in the years since 1910 would not be complete without reference to the two World Wars in which our country was forced to take an important part.

Our entry into the First World War came in 1917, while our medical schools were still in the latter phases of the reorganization program. There were slight irregularities in the number of students and graduates, but these were not striking. Indeed the duration of our participation in the War was not long enough to cause any very grave problems for medical education, even with the added hazard of the very severe and world-wide influenza epidemic of 1918.

The Second World War—1941 to 1945

The Second World War was quite a different matter. In it, the medical schools were called to play an important part which taxed their resources very severely.

They were urged to produce doctors more rapidly, and inconsistently enough, students in premedical and medical years had difficulty in securing deferments for the continuation of their education. The faculties of medical schools also became depleted by the drafting of some members and

of younger men in training for faculty positions.

The adoption of the accelerated schedule, which eliminated the summer vacation, added to the teaching load, but it did result in the graduation of one extra class of about 6,500 doctors during the war.

The organization of the Army Specialized Training Program and the Navy V-12 program reduced the draft difficulties, but also resulted in less adequate premedical training for students in those programs. The premedical training was reduced to a scant two years.

Following the close of the War, the return of many veterans to academic life brought, for a few years, a number of applicants for places in medical schools which was nearly double anything previously experienced and made necessary the rejection of many worthy men at a time when the country was needing more doctors. But it should be pointed out that the excess of applicants above the number admitted was not nearly as great as was popularly believed at the time.

D. The Development of Medical Knowledge

As we consider the development of medical education in our country beginning with the earliest medical schools, it is essential that we keep in mind that this development did not take place during a period of static medical knowledge. On the contrary, in the years covered in this development, there took place almost the entire development of scientific medicine as we know it today.

It was as recently as 1870 that Pasteur was making his fundamental observations on the relations of micro-organisms to fermentation and to certain diseases. Our knowledge of "germs" in relation to health is that young.

It was only 117 years ago (1839) when Schleidin and Schwann announced the "cell theory" of the constitution of living tissues, thereby laying the foundation for the microscopic study of normal and diseased organs, making possible the fields of histology and pathology.

Nor should we forget the rapid rise of chemical knowledge and the contribution this has made to the concept of the activities of healthy and diseased tissues. Moreover the entire field of modern surgery was made possible by the discovery and recent development of surgical anesthesia. The X-ray was discovered in 1895.

This whole matter was summarized in a recent publication by Dr. Willard Rappleye, dean of the medical school of Columbia University, thus: "Knowledge regarding the diagnosis, treatment, and prevention of disease and disability has increased more in the last 50 years than in the previous 5,000."

It is quite evident that for the mastery of the medical lore of today there is necessary a far better educational foundation than was necessary even 50 years ago. Recognition of this fact will indicate that we are not justified in measuring the medical schools of 1856 by the same standard as would be suitable for those of 1956. Nevertheless, the smallness of the medical knowledge of those earlier years did not justify the existence of the many schools which made no honest effort to teach the modest amount of medical knowledge known at that time.

E. Evaluation—What Are The Actual Accomplishments and Gains?

In the preceding account we have

traced several phases of the educational history of the period covered. Let us now inquire as to the real material results of the "ups" and "downs" in the number of medical schools and the number of students and graduates. What is the actual gain accomplished by the changes in standards? A few observations will suggest the answers.

The number of medical schools in relation to population

We have followed the rise and fall of the number of medical schools through the years. What of it?

From 1810 to 1820 there was about one medical school for each million of our population. From 1850 to 1900 (except for a short time during the Civil War) there were about two schools for each million. The rapid decline from 1900 to 1920 reduced the ratio to about 0.8 of a school per million (Figure 1). Since that date the population has increased more rapidly than has the number of medical schools, until at the present time we have about 0.5 medical school per million. The question may well be asked as to whether there are enough medical schools to do the required job. The figures concerning the number of students and of graduates gives a partial answer.

The number of medical students in relation to population

When we compare the fluctuating number of medical students with the population of the country we find that in 1880 there were about 230 students per million population. By 1904 this had risen to 336 per million, a gain of 41 per cent (Figure 2). The decline from 1904 to 1920 reduced the ratio to 133 per million, a drop of 60 per cent. From that date to the present time, the ratio has shown an irregular rise to 173 per million in 1955. This is well below the peak in 1904 or even in 1880.

The number of graduates in relation to population

But a more indicative figure is the number of graduates. In 1880 there were 64 graduates per million population, and in 1904 there were 68. Not much change (Figure 2). But it has consistently been said that too many doctors were being produced in those years. From 1904 to 1922 the number fell to 23 per million, a drop of 66 per cent. Since that date there has been a modest upward trend, so that in 1955 we graduated 42 doctors for each million of our people.

Are we producing enough doctors now for the needs of our people? How can we measure the reasonable coverage of one doctor under the conditions of 1956 in comparison with those of 1900 or 1880? These questions are receiving much study. The steady increase in the number of graduates and the establishment of new medical schools gives promise that we do not need to fear a serious shortage of doctors in the forseeable future.

The quality of the graduates

What about the excellence of the graduates? Has the reorganization program brought a real improvement? How can this be measured?

Although precise measurements may not be possible, a few points may be mentioned. As one item, the products of the schools *should* be better than in earlier years because students now enter medical schools with more educational training than formerly, and they spend more time in medical school. This ought to mean some-

thing. And added to this is the time spent as interns and residents, after their graduation.

Without question, the medical schools of today have better faculties, better buildings and equipment, and better hospital facilities than even 50 years ago. And the last 40 years have seen great advance in the care given to the selection of students for admission.

Beyond and back of the above mentioned points lies the great gain in the ethical ideals of medical school administration which has come with the elimination of the schools which existed for the purpose of making money. This is the foundation upon which rest all of the other advances.

The final measure of the excellence of the graduates

The final measure of the excellence of medical care must lie in the healthfulness of the people. We are well aware of the great increase in the average life span of the people of our country within the last half century. Can anyone question that this is due in large part at least, to the advance in medical knowledge and to improved teaching standards in the schools which train physicians to use this knowledge?

What of the future?

As we look back to the founding of the first medical school in our country 191 years ago, can we with equal clarity look into the future for the next 191 years? What are the plans?

Much study is being given to the devising of programs which will meet the needs of the future. Those plans are just like those of a century ago, when the advocates of better medical education sought to move forward one step at a time. At present, plans for the forseeable future deal with financial support, medical research and improved teaching procedures. And permeating this effort is the determination to maintain high standards of intellectual honesty and social responsibility in the formulation and carrying out of policies. It is recognized that only by constant vigilance can the gains of the past be preserved and made the basis for the progress of the future.

Aventuras en la Educación Médica

En esta conferencia (leída en St. Louis, en abril de 1956, ante la "Alpha Omega Alpha Honorary Medical Society") el Prof. (retirado) Gideon S. Dodds, de la Escuela de Medicina de la Univ. de West Virginia, pasa revista a la evolución de la Educación Médica en los Estados Unidos desde la época colonial y la fundación de los primeros Colegios de Medicina (el primero de éstos fué el de la Univ. de Filadelfia, en 1765) hasta nuestros dias. Hay tres períodos principales, según destaca el autor: 1) Un largo período de crecimiento "incontrolado" (hasta, aproximadamente, 1900); 2) un período de reorganización rápida que va de 1900 a 1920, y, 3) un período de sana estabilidad, desde 1920 hasta hoy. Todas las fases de desarrollo, dentro de esos períodos, de las Escuelas de Medicina y de la Ciencia médica, se describen y comentan detalladamente, así como los principales acontecimientos que contribuyeron al progreso de la Educación médica. Este progreso, el alto nivel que muchas Escuelas de Medicina de este país han alcanzado hoy, son—según señala el Prof. Dodds—resultado de una larga serie de acontecimientos: planeamientos cautelosos y cambios graduales, por una parte; mas, por otra, experimentos audaces y muchas "aventuras" extraordinarias.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

An Experiment in Teaching Psychotherapy

ALBERT J. STUNKARD

The nature of the problem

PSYCHOTHERAPY MAY BE defined as the process whereby a physician effects a favorable change in his patient's living through psychological or interpersonal means. It is this broader meaning of psychotherapy with which this report deals. Thus, although this definition includes the formal psychotherapy of psychiatric practice, it also encompasses many other aspects of medical practice, aspects which have been called "psychotherapeutic medicine," "comprehensive medicine," and perhaps most commonly, "the art of medicine."

This is a subject which is traditionally difficult to teach. Indeed, there are many who still maintain that whereas these matters may perhaps be learned by experience, they cannot be taught. Or—if they can possibly be taught, the teaching must be slow and painful, by precept or example. For those physicians who do not incline, or do not wish to incline, to this view, a recent experience in the teaching of psychotherapy may be of interest.

Two years ago a small group of internists in the general medical clinic of The New York Hospital asked the psychiatric consultants in the clinic for a short course on psychiatric methods which might help them in dealing with the emotional problems of their patients. Although no time limit was set, it was the general impression that 8 or 10 meetings would be quite enough to cover the major areas of interest. Accordingly, the hour before medical Grand Rounds was set aside for weekly meetings. To our* surprise and pleasure our original time limit has long since expired, there has been no inclination on the part of the members to disband the group, and at the present time, two years and 80 meetings later, we are still going strong and look as if we are about to become a permanent fixture of the medical clinic.

Participation in the program was largely by attending physicians in the general medical clinic of The New York Hospital. Twenty-five of the medical clinic roster of 60 physicians attended meetings of the psychotherapy group at least five times during the first year. Fifteen of these, or 25 per cent of the physicians work-

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*The first person plural is used throughout this report in the collective rather than the editorial sense.

ing in the medical clinic, were regular members of the group. Attendance at the meetings averaged 10 to 12, but there were three meetings attended by as few as seven physicians, and two at which more than 20 were present.

The form of the program

An early decision we faced was the form which the program should assume. There was ample precedent for the traditional psychiatric teaching program with its focus on personality development, psychodynamics and psychopathology. There was also ample evidence of the ineffectuality, and, perhaps worse, the meaninglessness of most such efforts in the past. Furthermore there was a serious question as to whether such teaching, designed for medical students and young psychiatrists, was even appropriate. The internists in our program were mature and experienced physicians, skilled in dealing with patients. For years they had been performing psychotherapy, often of a high calibre, whether or not they had chosen to view their work in such terms. They had a limited amount of time and very concrete problems which were pressing for solution. Any method which could address itself directly to these problems had obvious advantages.

However, any attempt to by-pass the traditional methods of teaching psychiatry had many disadvantages. There was great variation in the past experience and personality attributes as well as the motivations and expectations which the various participants brought to the program. Some hoped to be taught a standard body of psychiatric information which could be applied to their patients in the same relatively detached manner of any other treatment, while a large number preferred that the teaching be conducted in the traditional didactic manner. These differences made it impossible to determine beforehand a goal acceptable to all of the members of the group, and this situation itself proved unsettling to some.

As the result of these problems, which became apparent during the preliminary discussions, we decided not to predetermine the form of the program, but to allow it to develop as it best suited the needs of the participants. We thus began the seminar in a state of some uncertainty, planning to utilize the first meeting, or meetings, to determine the needs of the various members, and how they felt these could best be met. Accordingly, we first organized as a study group; and although this had been conceived primarily as an exploratory device, the form of the study group became the major teaching vehicle. Only in retrospect did we come to recognize the advantages of this fortuitous development.

The subject of study

What did we study? The main area of investigation was problems in patient care, and our major effort was to make explicit those aspects of "the art of medicine" which involve the doctor-patient relationship. The focus of each meeting was thus on a particular problem in patient care faced by one of the members of the group. Such a method made the meetings exercises in problem-solving, and free discussion kept the problems relevant to the interests of the majority of the members. No attempt was made to teach any theory of personality functioning, or to extend considerations of theory beyond the needs of the problem at hand.

Instead, major emphasis was placed upon something which is harder to define, and which may well have given the seminar its distinctive character. This was the effort to create an atmosphere of respect for the efforts of other members of the group, and trust in their good will. Higher priority was thus accorded respectful attention to the physician's account of his experiences than to consideration of content, and honesty and freedom of expression were more highly regarded than familiarity with psychiatric theory.

An atmosphere of trust developed, and in it the participants were able to discuss with remarkable honesty what occurred in their treatment of patients. As a result of their increased awareness of many aspects of treatment, the members of the group were stimulated to explore ways of establishing more meaningful and more helpful relationships with their patients. The support of their colleagues helped them to master the anxiety aroused by these efforts.

Two problems in patient care

As an illustration of what was studied in the seminar, two characteristic problems in patient care will be described, one of which arose early in the course of the program, and is now largely resolved, and one of which occurred much later, and is still unsolved.

The first of these problems arose at once, and became the subject of lively debate within 10 minutes after the first seminar had begun. This is a problem which might be called "the danger of doing psychotherapy." The attitude is a difficult one to define, and yet almost every member of the group who had not had considerable previous supervised work in psychotherapy expressed such feelings. They were at first formulated as a sort of vague fear that something terrible would happen if the nonpsychiatrist ventured into this alien and forbidding land of the emotions. It was surprising to find this concern expressed even by mature and experienced physicians who were excellent psychotherapists within the framework they had developed for themselves. We can only surmise about the variety of personal factors which motivated this concern. But the common elements seemed to be a belief that "doing psychotherapy" involves something quite different from their usual practice, and a disinclination to violate taboos of privacy to become more intimately involved in the lives of their patients.

The first stage in the management of this anxiety was its expression. Members of the group were surprised to find that their colleagues had such concerns, and it became clear that this was not a matter which they had previously discussed with each other. Such discussion, perhaps in the company of physicians more experienced in these matters, seemed the major instrument in the reduction of the anxiety.

It then became clear that two quite realistic fears were hidden in the larger and more diffuse anxiety. One was the danger of precipitating suicide, the other was the danger of precipitating psychosis. Once these two issues were defined, it was possible for a psychiatrist to present methods of evaluating these dangers in a straightforward, even didactic, way. This exercise marked a turning point in the concern with "the danger of doing psychotherapy." From then on it played a progressively smaller part in blocking efforts to learn psychotherapy, and after the tenth meeting it was raised as an issue only by newcomers in the group.

Much later in the program another problem arose, and it has still not been satisfactorily resolved. As the members of the group became interested in learning more about the lives of their patients, they began spending more and more time with them. The logical end point of this development was reached when the members began setting aside time each week for 50 minute hours of formal psychotherapy with patients who seemed particularly suited for such treatment. At the outset many of the physicians felt that they were doing this largely for their own benefit, because they had become interested in finding out more about certain of their patients. It soon became apparent, however, that such measures were not only intellectually and emotionally gratifying to the physicians, but that they were accompanied by considerable benefit to their patients. But these developments posed a particularly distressing dilemma.

The internist could continue to see patients in such an extended manner only at considerable financial sacrifice if he continued to charge his standard fee for an office visit. And, in the process, he was subsidizing his patient's psychotherapy. On the other hand, if he were to receive a fee which would not financially inconvenience him, he would be forced to charge at the standard psychiatric rates. And the idea of charging a patient $15 or $20 an hour for psychotherapy was embarrassing to internists who considered themselves amateurs in the field.

This is a subject which is still being discussed in the seminar. Most of the members feel more comfortable about charging fees commensurate with the time they invest. But they are still troubled by their consciences when they charge such fees, and by their wives when they don't. Most of all, however, they are troubled when they feel they cannot provide their patients with the remarkably good psychotherapy they are becoming increasingly capable of performing.

A similar experiment

Shortly after this paper had been prepared, this journal published "Psychiatry for Medical School Instructors," a report from the Harvard Service of the Beth Israel Hospital in Boston[1]. There are significant differences between the Harvard and Cornell programs both in initial aim and eventual form. Their similarities, therefore, are the more notable, since they may reflect some common denominators of such endeavor.

The initial aim of the Harvard program was "to direct the teaching of medical school instructors toward a greater consideration of personality factors in patients." At Cornell, although the members of the psychotherapy seminar were teachers in the medical school, improvement of instruction was only an incidental goal of the seminar. A greater difference between the two programs was in their conception. The Harvard program was viewed by its authors as "an annual course in psychoanalytic psychology" which involved "a systematic theoretical presentation illustrated by case material." The Cornell program was an on-going endeavor which sought to define its goals as it went along and in which the primary materials were case presentations.

Because of these differences, the similarities between the two programs are instructive. Both were organized as seminars, and both met weekly. Two psychiatrists participated concurrently throughout each program. Although this may be for-

tuitous, it has been our impression that such participation may serve an important function in this type of endeavor. This impression will be elaborated in a forthcoming publication.

Short reports can do no more than indicate the nature of a few of the problems raised in programs of this type. It is therefore worthy of note that the Harvard group reported "concern about misapplying psychiatric knowledge and thereby upsetting a patient," a concern which seems parallel to "the danger of doing psychotherapy" described here. Finally, Dwyer and Zinberg comment on the changed character of the contact between psychiatrists and nonpsychiatrists outside of the seminar. In this report we have not attempted to define the nature of the change accompanying participation in the psychotherapy seminar. However a marked increase in the fruitfulness of contact between internists and psychiatrists was one of the most gratifying results of the Cornell, as it was of the Harvard, program.

Conclusions

It appears that a disciplined study in a group situation of problems of patient care can be a highly meaningful experience to a considerable proportion of physicians who are not psychiatrists. This experience seems to lead to a greater concern for the lives of their patients, and this concern, in turn, appears to lead to a greater inclination to attempt psychotherapeutic intervention. There is evidence that this intervention has become more effective.

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Un experimento en la enseñanza de la Psicoterapia

Hace 2 años, un pequeño grupo de médicos internistas de la Clínica General del *New York Hospital* pidió a los consejeros psiquiatras de ésta que diesen un cursillo, una especie de seminario, sobre los mejores métodos psiquiátricos que los internistas pudieran aplicar en el tratamiento de los problemas emotivos de sus pacientes. En discusiones preliminares se decidió no adoptar para ese cursillo el método convencional, enfocado hacia conocimientos y problemas generales de Psiquiatría y Psicoterapia, y, de hecho, no adoptar ningún método de enseñanza fijo, sino dejar que las discusiones se desarrollasen según las necesidades de sus participantes. Como el propósito principal del curso era aclarar esos aspectos del "Arte de la Medicina" que se refieren a la relación entre médico y paciente, resultó que el tema central en cada sesión fué un problema específico con el que algún miembro del grupo se había enfrentado en alguna ocasión. No se hizo tentativa alguna de extender las consideraciones teóricas más allá de lo que se juzgaba necesario para resolver cada uno de los problemas concretos. Se describen en el presente trabajo, que es un detallado informe sobre la organización y funcionamiento de dicho seminario, las discusiones sobre dos problemas característicos. El primero, que el autor llama "el peligro de practicar Psicoterapia", se refiere al vago temor de muchos médicos no psiquiatras de aventurarse en el terreno de las emociones; temor que en las discusiones pudo ser definido finalmente como el miedo de precipitar un suicidio o una psicosis. El segundo era un problema de tiempo (que aun queda sin solución completa), ya que los médicos, en la medida en que se iban interesando por los problemas no fisiológicos de sus pacientes, necesariamente habían de dedicar cada vez más tiempo a éstos. En sus conclusiones, el autor expresa la opinión que el seminario sobre problemas de Psicoterapia (que originariamente había sido planeado para 8 o 10 semanas, y que aun sigue funcionando después de 2 años) representa una valiosa experiencia para un número considerable de médicos no psiquiatras. También señala que un experimento similar tuvo lugar recientemente en el *Beth Israel Hospital* de Boston (véase "Psychiatry for Medical School Instructors", publ. en el *Journal of Medical Education* (1957), 32:331-338), y describe, brevemente, semejanzas y diferencias entre ambos.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

Report of the 68th Annual Meeting

Association of American Medical Colleges
Chalfonte-Haddon Hall
Atlantic City, New Jersey
October 21, 22, 23, 1957

The incoming and outgoing presidents of the AAMC are shown above. Left, Dr. Lowell T. Coggeshall, dean of the division of biological sciences, University of Chicago, the 1957-58 president, and Dr. John B. Youmans, dean, Vanderbilt University School of Medicine, the 1956-57 president.

Report of the 68th Annual Meeting

REPRESENTATIVES FROM ALL of the member medical schools, individual members and medical educators from seven foreign countries met in Atlantic City, N. J. at the Chalfonte-Haddon Hall, October 21-23 for the 86th Annual Meeting of the Association of American Medical Colleges.

Dr. John B. Youmans, dean, Vanderbilt University School of Medicine and outgoing AAMC president, opened the meeting Monday morning by introducing to the assembly 11 new deans and welcoming the foreign medical educators.

The subject of Dr. Youmans' speech was introduced in the form of the question, "Who is Responsible for the Medical Schools?" Dr. Youmans stated he did not refer to curriculum, to course content, to administrative organization or to similar internal details, but to the provision of sufficient money to operate the medical schools at a satisfactory level of excellence and a capacity sufficient for the task they are expected to perform and the responsibilities they are expected to discharge. He further stated that the future will demand of the medical schools a larger number of graduates, an improved curriculum and an ever-expanding program of research. These are the urgent problems Dr. Youmans feels

Dr. John B. Youmans addressing opening meeting.

must be solved. Dr. Youmans' full speech will appear in a later issue of The Journal.

Monday morning's session also featured "Reflections from the Institute on the Ecology of the Medical Student," which was held October 15-19 immediately preceding the Annual Meeting. These "Reflections" were given by Dr. Robert J. Glaser, dean, University of Colorado School of Medicine; Dr. George Packer Berry, dean of the Harvard Medical School; Dr. T. Hale Ham, professor of medicine, Western Reserve; Dr. Charles R. Strother, professor of clinical psychology, University of Washington; and Dr. Julius B. Richmond, chairman of the department of pediatrics, S.U.N.Y. (Syracuse).

The Honorable Marion B. Folsom, Secretary of Health, Education and Welfare, spoke at the afternoon session on Monday and his topic was entitled, "America's Stake in Medical Education." Stating that the American people generally have little appreciation of the great issues hanging in balance in medical education at this time, he noted that these issues involve no less than their own good health and the strength, vitality and security of this country. He pointed out, however, that their interests do not seem to extend to the medical schools which made so many of these benefits possible.

Mr. Folsom said, "the American people seldom think in abstract terms of "medical education." The average American, if he thinks about it at all, feels quite remote from the patient professor who imparts knowledge and skill both to research scientists and to doctors." During the past 10-year period, medical research expenditures have increased almost three times as fast as expenditures for medical education, indicating the lack of interest in medical education. He therefore feels that the Association and the government need to make a major effort to help educate the public to understand three facts: First, medical schools are the essential key to all health progress. They conduct much of the research which is opening new frontiers in medicine; they train many of the scientists who do the research; and they train the physicians who bring medical care to the people. Second, medical schools now face the gravest of financial problems—problems which, in fact, threaten the future progress of American medicine. Third, the need is so vital and so great, and the time already is so late, that only a com-

The Honorable Marion B. Folsom

bined and concerted effort involving all those concerned with better health can accomplish the task.

Annual Banquet

Highlighting the Annual Dinner was the presentation of the Borden Award in Medical Science, which is given each year in recognition of an outstanding contribution to medical research. This year the award was presented to Dr. Murray L. Barr of the University of Western Ontario. Dr. Barr's research established a simple laboratory means of determining the genetic sex of an individual, valuable to physicians in certain cases where there may be doubt. It is also useful in enabling proper diagnosis in cases involving fertility. Dr. Oliver H. Lowry, dean of the Washington University School of Medicine and chairman of the Committee on the Borden Award, made the presentation.

In recognition of his contribution to American medical education, the Association established the annual Abraham Flexner Award for Distinguished Service to American Medical Education, and at the dinner, gave the first award to Dr. Flexner. As he was unable to be present, the award was accepted by Mr. John Gardner, president of the Carnegie Corporation, in Dr. Flexner's behalf. Dr. Flexner was author of the famous 1910 survey and report which brought about an upgrading of this nation's medical schools, elimination of diploma mills and other then current abuses.

Dr. Murray L. Barr

The Flexner award each year hereafter will be presented to an individual who has made a noteworthy contribution to modern medical education.

Main speaker at the annual dinner on Monday evening was Mr. Oliver C. Carmichael, consultant to the Fund for the Advancement of Education, whose topic was, "Some Comments on Medical Education." Mr. Carmichael emphasized the fact that medical education is university education. He said, "Of the 80-odd medical schools in the United States, all except eight are integral parts of universities. Because this has not always been the case, the fact that medical education is now predominantly university education is significant since the true purpose of a university is not alone teaching and research but also the pursuit of truth. Its consti-

Mr. John Gardner receiving from Dr. Youmans the Abraham Flexner Award for Distinguished Service to American Medical Education on behalf of Dr. Flexner.

tuent schools and colleges must be partners in this pursuit. This means that preparation for medicine involves more than the acquisition of knowledge and skills; it involves also understanding the role of the profession in society and a philosophy of the science and art of its practice."

Business Meeting

At the Business Meeting on Tuesday, October 22, 77 new individual members were voted into the Association.

The meeting included reports of the AAMC's Standing Committee plus the reports of the Executive Council, the Executive Director, the secretary, the treasurer, the director of research and the director of the Medical Audio-Visual Institute. A report was also made on the Hungarian refugees admitted to medical schools.

The Association approved a statement encouraging the establishment by strong universities, of programs offering the first two years of the medical course. Dr. Youmans cited that even with four developing medical schools added to the current 83 approved schools, physician graduates will increase only by 450 during the next seven years. Reports reveal that existing 4-year schools can absorb up to 400 additional students from two-year programs each year into their third and fourth year classes.

A resolution was passed to establish the Alan Gregg Lectureship in memory of the late Alan Gregg, for many years director of the Rockefeller Foundation Division of Medical Sciences. Dr. Gregg died on June 19, 1957. The resolution memorialized Dr. Gregg as a world leader in medical education and as having been instrumental in the development of psychiatry and preventive medicine as major educational and research fields.

The Association voted approval to the principle of federal aid in the building, expanding and modernizing of facilities for medical education. The resolution pointed out that several members of the present Congress are sponsoring legislation designed to aid medical schools in their construction program, but that some legislators are not convinced that this proposed legislation has the interest of the Association's entire membership.

The 1957-58 Executive Council of the AAMC is shown at its first session. Counterclockwise: Dr. Stanley B. Olsen; Dr. Stockton Kimball, treasurer; Dr. Gordon H. Scott; Dr. John McK. Mitchell, president-elect; Dr. Lowell T. Coggeshall, president; Dr. Ward Darley, executive director; Miss Melba Allyn (staff); Dr. John F. Sheehan; Dr. Thomas H. Hunter, and Mrs. Lotus Barnes (staff). Not present were: Dr. Mark Everett, Dr. John Bowers, Dr. Joseph Wearn, vice-president, and Dr. John B. Youmans.

The Editorial Board, shown in its closed meeting session on Sunday, October 20. Seated, left to right: Dr. John Z. Bowers, chairman of the Board and editor of this Journal; Dr. K. E. Penrod, and Dr. Vernon W. Lippard. Standing, left, Dr. William Frederick Norwood and Dr. T. Hale Ham.

Foreign medical educators pictured with Dr. Darley, AAMC executive director: Standing, left, Dr. Darley, Dr. Ramon Villarreal, medical school of San Luis Potosi, Mexico, and Dr. I. E. Powers, associate dean of medical sciences, American University, Beirut, Lebanon. Seated, left, Dr. John R. Ellis, University of London, and Dr. Ba Than, University of Rangoon, Burma. Present for the meeting but not pictured were: Dr. Rubens Maciel, De Porto Alegre, Brazil; Dr. Soe Joenoe, Surabaja, Indonesia; Lieut. Schildt, Royal Swedish Navy, and Dr. Denis O'Donovan, University College of Dublin, Ireland.

New Officers

New officers for the coming year are: Dr. Lowell T. Coggeshall, dean of the division of biological sciences, University of Chicago, who has served as president-elect during the past year; Dr. John McK. Mitchell, dean of the University of Pennsylvania School of Medicine, president-elect. Elected vice-president was Dr. Joseph Wearn, dean of the school of medicine, Western Reserve University; Dr. Richard H. Young, dean of Northwestern University's medical school, as secretary; and Dr. Stockton Kimball, dean of the Buffalo School of Medicine, treasurer. New Council members include: Dr. Mark Everett, Oklahoma, and Dr. Gordon Scott, Wayne State.

The Eden Roc Hotel in Miami Beach, Fla., was designated as the 1960 meeting place.

The 69th Annual Meeting of the Association will be held October 13-15, 1958 at the New Ocean House, Swampscott, Mass.

Concluding Session

The meeting Wednesday morning opened with a speech by Dr. John R. Ellis, sub-dean of London Hospital Medical College, whose topic was "Medical Education in Britain."

The meeting concluded with the installation of new officers.

Pre-Conference Meetings

The 1957 Institute and Continuing Group

The evaluation of the medical student was the subject of scrutiny by two key groups of medical school representatives at Atlantic City during the week before the annual meeting of the Association. Participants in the 1957 AAMC Institute on the Ecology of the Medical Student met October 15-19 for an intensive program of general sessions and round-table discussions at Haddon Hall. Then, on October 19-20, medical school admissions officers took over the meeting rooms for the first conference of the Continuing Group on Student Evaluation, an outgrowth of the 1956 Institute on the Appraisal of Applicants to Medical Schools.

Dr. Robert J. Glaser served as chairman of the Planning Committee for the 1957 Institute, which dealt broadly with the interaction of the

Four of the speakers at the MEND meeting pictured above included: Left, Dr. E. L. Burney, the Surgeon General, U. S. Public Health Service; Brig. General M. S. White of the U. S. Air Force; Major General J. P. Cooney of the U. S. Army, and Dr. W. S. Middleton of the Veterans Administration.

Attending the MEND meeting were (left to right) Col. Norman E. Peatfield, Surgeon General's Office; Dr. Robert C. Baldridge, Temple University, and Col. Byron L. Steger, Surgeon General's Office, Department of the Army.

student with his environment and was structured according to five main topics: Intramural Forces Affecting the Medical Student, Diversity of Values and Objectives in Medical Education, Non-curricular Factors Affecting the Medical Student, Development of Professional Attitudes and Capacities, and Educational Patterns for Medicine.

Dr. John L. Caughey, Jr., steered the organization of the Continuing Group of admissions officers and planned their first program, which was patterned after the 1956 Institute and allowed ample opportunity for intensive analysis of admissions problems.

A meeting was also held by the directors and vice-presidents in charge of Teaching Medical Centers.

MEND Meeting

On Saturday, October 19, the meeting on Medical Education in Preparation for a Total National Emergency was held with the Hon. Frank B. Berry, M.D., Assistant Secretary, Department of Defense (Health and Medical Affairs), as moderator. Other speakers included: Major General J. P. Cooney, M.C., The Deputy Surgeon General, U. S. Army; Brig. General M. S. White (MC), Director, Medical Staffing and Education, Office of the Surgeon General, U. S. Air Force; Dr. E. L. Burney, the Surgeon General, U. S. Public Health Service; and Dr. W. S. Middleton, Chief Medical Director for the Veterans Administration.

NEWS DIGEST

New Center for Handicapped Children

Offering services for children with mental, emotional and physical handicaps, the Child Study, Treatment and Research Center of The Woods Schools, Langhorne, Pa., opened last month, following dedication ceremonies on October 12. Psychotherapy, speech, hearing and physical therapy as well as remedial reading will be offered. Research studies will combine medical, psychiatric, psychologic and sociologic inquiries in a multidisciplinary approach.

The Center is affiliated with the University of Pennsylvania, Rutgers University and Columbia University, with Dr. William C. Adamson, child psychiatrist as head of the resident staff of medical, psychologic and social work personnel.

Shortage of Cadavers

A six-step program to alleviate the shortage of cadavers for anatomical studies has been outlined by a committee of the National Society for Medical Research chairmanned by Dr. OLIVER P. JONES, professor and head of anatomy, University of Buffalo. Members of the committee responsible for the program are, in addition to Dr. Jones: Dr. BENJAMIN SPECTOR, professor of bio-anatomy and professor of the history of medicine, Tufts University School of Medicine, and Rev. THOMAS J. O'DONNELL, S.J., regent and dean of students, Georgetown University School of Medicine.

Dr. Jones remarked, "changing times plus outmoded laws and ancient prejudices mean increasing trouble for the anatomy departments of many of America's medical colleges." He further reported that a majority of the colleges are unable to obtain enough bodies to teach student doctors efficiently, forcing some schools to drop important courses in such subjects as surgical anatomy.

World Health Organization Conference

Fifteen scientists from five countries were invited to attend a five-day conference to study the classification of atherosclerotic lesions—the process of thickening and hardening of the arteries—and to make recommendations for a unified nomenclature of the terms used in the various parts of the world. The meeting opened October 7, in Washington, D. C., and was conducted by the Pan American Sanitary Bureau, WHO's regional office for the Americas. The National Heart Institute of the Public Health Service collaborated.

New Heart Device Designed By Aero Medical Laboratory

A simple electronic instrument which restores normal heartbeat in cases of cardiac arrest has been designed by the Air Force's Aero Medical Laboratory. The instrument is effective in restoring cardiac function after cardiac standstill, where the heart has stopped contracting, and in ventricular fibrillation, where individual muscle fibers of the heart are contracting asynchronously. The pace-maker-defribrillator can also increase the output of a feebly beating heart by forcing more complete contraction and, if needed, increasing heart rate.

Trans-Atlantic Report on Heart Disease

A trans-Atlantic report direct from London, a "visit" with an international research team in southern Italy and two live demonstrations of surgical techniques will highlight a closed-circuit "grand rounds" telecast on coronary artery disease for American physicians on November 13.

This world-wide report to audiences of physicians in 55 cities throughout the United States will deal with the most recent developments in surgery, internal medicine, clinical and laboratory investigation, physiology and epidemiology in the scientific battle against coronary artery disease. The telecast will be the sixth in a series sponsored by The Upjohn Company.

Members of the panel from various universities include: Dr. Claude S. Beck, Western Reserve, Dr. William Dock, State University of New York, Dr. Ancel Keys and Dr. C. Walton Lillehei, Minnesota, and Dr. Paul Dudley White, Harvard. Dr. J. N. Morris, director of the British Medical Research Council's Social Medicine Research Unit will report from London.

College Briefs

Albany

A grant has been received from the W. K. Kellogg Foundation to improve and expand the family care clinic and to provide training and experience for junior instructors in the teaching of comprehensive medical care of families. The Kellogg Foundation has supported the program since its inception in 1953.

Coordinator of the care program and administrator of the grant is Dr. J. GARTH JOHNSON, professor and chairman of the public health department. Members of the faculty assigned to the staff include: Dr. JOHN W. RUNYAN, clinical director; Dr. FREDERICK MCCANDLESS, psychiatrist; Dr. PAUL PATTERSON and Dr. JOHN ABBUHL, pediatricians; Dr. MAURICE WEINSTEIN, psychologist.

Cincinnati

Former chief of neurology and psychiatry at the Veteran's Administration Research Hospital, Chicago and Northwestern University faculty member, Dr. ROY M. WHITMAN has been appointed associate professor of psychiatry. Dr. Whitman is interested in group therapy, in which he holds a five-year Public Health Service research grant.

U. of Chicago

Dr. ROBERT W. WISSLER has been named chairman of the department of pathology, succeeding Dr. PAUL R. CANNON, who retired September 30. In 1947 Dr. Wissler was awarded the university's Howard Taylor Ricketts medal for outstanding research by a student in pathology and bacteriology and in 1952 won the Joseph A. Capps prize of the Chicago Institute of Medicine for producing hardening of coronary arteries in animals.

Creighton

Dr. ROBERT P. HEANEY has joined the full-time faculty as assistant professor in the department of medicine. For the past two years Dr. Heaney has been a research member of the National Institute of Arthritis and Metabolic Diseases.

Emory

Men of science from other countries are among professors recently added to the faculty. Dr. GEOFFREY BOURNE assumed his duties in September as chairman of the department of anatomy. A native of Australia, Dr. Bourne is a former professor at the London Hospital Medical College. Newly appointed in Dr. Bourne's department are Dr. DAVID BRANDES, formerly with the Argentina Atomic Energy Authority; Dr. ABDEL F. BARADI, lecturer at Abbassiah Medical College, Cairo, Egypt; and Dr. W. C. OSMAN-HILL, research scientist at the London Zoological Gardens. German-born Dr. GHERHARD BRECHER has been named a professor of physiology. Dr. Brecher has taught at American and European universities and served with an UNRRA team.

A new department of neurology is being organized with Dr. HERBERT R. KARP as the first full-time teacher assigned to this area. Dr. Karp has been associated with the Communicable Disease Center in Atlanta.

The following members have been promoted to professor: Dr. BENJAMIN R. GENDEL, Dr. TED LEIGH, Dr. R. BRUCE LOGUE and Dr. J. ELLIOTT SCARBOROUGH.

Georgia

Dr. VICTOR CLARENCE VAUGHN III has been appointed professor and chairman of the department of pediatrics. Prior to coming to Georgia, Dr. Vaughan was associate professor of pediatrics at Temple University School of Medicine.

Georgetown

Construction began September 16, on the new Gorman diagnostic building in the Georgetown University Medical Center. The $3 million structure will stand at the south end of the present hospital building and will be connected with the hospital by a passage. The building, named in honor of the late Rev. Lawrence C. Gorman, S.J., Georgetown president from 1942 to 1949, will house diagnostic, outpatient and research facilities and will free space in the existing hospital to provide 40 additional rooms for patients.

Hahnemann

Dr. JOSEPH E. IMBRIGLIA has been appointed professor and head of the department of pathology. Dr. Imbriglia has been a member of the faculty since 1950. Dr. LEWIS C. MILLS will head the section in endocrinology and metabolism in the department of medicine. Dr. Mills was formerly assistant professor of medicine at Baylor University College of Medicine as well as the director of the Endocrine-Metabolic Research Unit of the Methodist Hospital in Houston.

Jefferson

The Devereux Foundation of Devon, Pa. and the Jefferson Medical College have announced their affiliation. The program will provide for inter-related staff, joint teaching, training of children and research. The Devereux Foundation operates 19 residential units for children with an enrollment of 800 students and a staff of more than 600.

Michigan

The school was recently saddened by the death of their assistant dean, WAYNE L. WHITAKER. Professor Whitaker made a noteworthy contribution in the field of cancer chemotherapy research, volunteering himself as a subject for experiments during the length of his illness. Professor Whitaker was appointed assistant dean of the medical school in 1953 after having been secretary of the school since 1948.

Missouri

The National Institutes of Health have awarded an undergraduate mental health teaching grant in the amount of $15,000 for the academic year 1957-58. The grant will be administered by Dr. ROSCOE L. PULLEN, dean.

The Public Health Service has awarded grants totalling $52,364 to

various departments of the school. Largest of these grants is an amount of $25,000 to Dr. J. H. KILLOUGH, associate professor in the department of medicine, for the study of "Undergraduate Teaching in Heart Disease."

N.Y.U. Bellevue

A 23-member executive committee, composed of New York business men, physicians and philanthropists will spearhead the campaign for a new $20 million general hospital at the university's medical center. The proposed 19-story hospital will complete the current center building program which now comprises a medical science building and the Henry W. and Albert A. Berg Institute for experimental physiology, surgery and pathology; a 14-story residence hall; an alumni hall and the Institute of Physical Medicine and Rehabilitation which is now being enlarged from a four-story to a seven-story building. A total of a little more than $11 million has been raised in gifts and pledges toward the $20 million hospital.

Oregon

A grant of $147,946 for a "Collaborative Study of Cerebral Palsy" was awarded the school by the Public Health Service recently. The study, to be directed by Dr. RICHARD L. SLEETER, director of the school's crippled children's division, will permit the expansion of research in the area of congenital diseases.

Construction has begun on the building to house a 2-million volt Van de Graaf X-ray therapy unit. The separate structure will be attached to the west side of the medical school hospital at the fifth floor level. The project is expected to be completed by the end of the year at a cost of $63,000.

Two new members have been added to the staff of the department of obstetrics and gynecology. Dr. RAPHAEL B. DURFEE and Dr. CHARLES F. MONTAGUE were appointed assistant professors.

Stanford

Professor ARTHUR KORNBERG of Washington University Medical School has been named head of a new department of biochemistry. The appointment becomes effective July 1959 following completion of the multi-million dollar Stanford Medical Center, now under construction. Dr. Kornberg is now professor and head of the department of microbiology at Washington.

Approximately $750,000 was left to the school by the late Charles A. Dore, who was vice-president of Superior Oil Company. Mr. Dore's bequest directed it be divided into two parts—the first for research at the medical school in the fields of cardiovascular and kidney diseases and the second to establish the Charles A. Dore Memorial Fund to provide fellowships to cover the salaries of specialists studying these diseases.

S.U.N.Y. Syracuse

Dr. CARLYLE JACOBSEN has been named president of the medical center. Dr. Jacobsen, who will also be dean of the center's college of medicine, will assume his new post December 1. The title of president at the medical center is a newly created one and coincides with the virtual completion of the basic sciences building expansion at the college. The expansion program, carried out at a cost of $4,500,000 will enable the college to more than double its size. Simultaneously, plans are being drawn for a university hospital to be operated in conjunction with the college. Since 1950, Dr. Jacobsen has been the university's executive dean for medical education, with offices in Albany.

Dr. JAMES L. MCGRAW has been appointed professor and chairman of the department of ophthalmology. Dr. McGraw succeeds Dr. FRANKLIN R. WEBSTER, who has been department chairman since 1954.

Temple

The following members of the faculty have been promoted to the rank of professor: Dr. MORTON KLEIN, professor of microbiology; Dr. EDWIN S. GAULT, professor of pathology and parasitology; Dr. AUGUSTIN R. PEALE, professor of pathology and Dr. JAMES B. AREY, professor of pathology. Dr. ROGER W. SEVY has been promoted to head the department of pharmacology, succeeding Dr. DEAN A. COLLINS, now research professor of pharmacology.

A total of $131,914 in Public Health Service grants have been awarded staff members of the medical center. Largest of these was awarded to Dr. ROBERT ROBBINS, professor and co-head of the department of radiology, in the amount of $26,105. Dr. VALY MENKIN, associate professor of experimental pathology, was awarded $25,000 as was Dr. MORTON J. OPPENHEIMER, professor and head of the department of physiology.

Additional facilities for the treatment of deep-seated cancers will be available in the Philadelphia area with the dedication of a new 2 million electron-volt Van de Graaf X-ray generator donated by the Donner Foundation of Philadelphia. The unit is one of 12 given by the Foundation to a dozen medical centers throughout the country. Dedication ceremonies were held on September 26.

Texas Postgraduate

The university of Texas Postgraduate School of Medicine in Houston will begin a new service to physicians and dentists of the State of Texas through the monthly publication "What Goes On," a small booklet listing medical and dental meetings and lectures. Hospitals, medical societies, specialty societies and medical schools are invited to contribute listings of their meetings. The deadline for submitting material is the 15th of the month of publication. This first issue will cover the period January 15 to February 15. All correspondence should be directed to: "What Goes On," 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

U. of Washington

Dr. MELVIN M. FIGLEY has been appointed head of the department of radiology. Dr. Figley was formerly assistant professor of radiology at the University of Michigan effective June 1958.

A bequest of $500,000 by the late Dr. Everett O. Jones, Seattle physician, was recently left the school for medical scholarships, loans and grants-in-aid.

Wayne State

Dr. OSBORNE A. BRINES, chairman of the department of pathology, has become the first American to be elected president of the International Society of Clinical Pathology. Dr. Brines was elected to a three-year term at the Society's meeting in Brussels, Belgium. He has served as chairman since 1947. Membership in the Society represents 23 countries.

Woman's Medical

Dr. John R. Heller, director of the National Cancer Institute, Public Health Service, was main speaker at ceremonies held in September launching the new $300,000 Uterine Cancer Research Project. Dr. I. N. DUBIN, professor of pathology, will be director of the project, with the assistance of Dr. ANTHONY L. PIETROLUONGO, associate professor of pathology.

Book Reviews

Connective Tissue in Health and Disease

Ed. by **G. Asboe-Hansen.** New York, Philosophical Library, 1957.

This book is a reprinting of a symposium first published in 1954. There are 22 chapters contributed by 23 eminent workers in connective tissue research, and as a consequence these are authoritative contributions. Various aspects of connective tissue morphology, chemistry, physiology and pathology are ably reviewed. The major clinical disorders involving connective tissue are also discussed. Each chapter surveys the historical background of research in the area of interest, and brings the reader up to date with developments in the field as of the time of writing. The book has been compiled and organized so as to give the reader a relatively broad and general view of the entire field. The chapters are sufficiently detailed to make this a valuable book for physicians with special interests in this area. The presentations are not, however, exhaustive or critical reviews, and as such their usefulness to laboratory scientists engaged in chemical or biophysical studies in these areas will be largely that of furnishing background information.

The most serious criticism of the book is that for a publication released in 1957 it is already 3 years more out of date than is the usual scientific work at the time of its appearance. As a consequence there are many advances which now render certain sections obsolete. For example, the discussion of possible routes of synthesis of glucuronic acid (p. 83) is no longer cogent in view of the recent definition of the reaction sequence. Similiarly, the discussions of the composition of chondroitin sulfate B (p. 64, p. 81) must now be rendered inadequate in view of the recent demonstration of iduronic acid as a component of this substance. Again, the urinary excretion of chondroitin sulfate B or B-heparin in Hurler's syndrome is not mentioned, and indeed was unknown in 1954. These and similar shortcomings require that the reader supplement his inquiry by reference to more current reviews to bring his information up to date in any special area of interest.

Notwithstanding this reservation, this book is warmly recommended as a valuable review of pioneer work in connective tissue research. It should be in all medical libraries and accessible to all workers in this rapidly advancing field. Physicians with special interests in rheumatic and connective tissue diseases will want this book on their shelves. The volume is well printed on good paper and relatively free from printing errors. Unfortunately, the absence of an index detracts from its usefulness as a reference work.

James B. Wyngaarden, *Duke*

The person in psychology: reality or abstraction

Paul Lafitte Philosophical Library, 1957.

Dr. Lafitte imparts to his reader the results of an extensive and highly original review of methodology in psychological science. In reading *The Person in Psychology*, it is unlikely that the reader conversant with contemporary psychology will learn anything new about persons. He will find in Lafitte's arguments some old strains of criticism frequently leveled at psychologists by educated laymen; but he will also find originality in Lafitte's analysis which makes the reading worthwhile. This reviewer, at least, found that Lafitte's presentation considerably clarified his thinking about methodological issues central to psychological enquiry.

The book begins with the problems of prediction that face the applied psychologist. His physical and conceptual tools are shown rather inadequate for the job of predicting actual behavior in concrete situations, and in the remainder of the book Lafitte attempts to explain why.

In making his point, Lafitte draws attention to a general quality of prediction: the practice in psychology of letting behavior in one situation in some sense "stand for" behavior in the situation in which prediction is desired. The psychologist "transfers" his understand-

DiFiore—An Atlas of Human Histology

By MARIANO S. H. DI FIORE

Associate Professor of Histology and Embryology, Faculty of Medical Sciences, University of Buenos Aires; Head of the Laboratory of the Juan A. Fernandez Hospital

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Holmes and Robbins—Roentgen Interpretation

By GEORGE W. HOLMES, M.D.

Honorary Physician, Massachusetts General Hospital; Clinical Professor of Roentgenology, Emeritus, Harvard Medical School; Radiologist, Waldo County Hospital, Belfast, Maine

and LAURENCE L. ROBBINS, M.D.

Radiologist-in-Chief to the Massachusetts General Hospital; Associate Clinical Professor of Radiology, Harvard Medical School

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ing of the first (predictor) situation to the second situation on the assumption that the substance of the predictor situation has something appreciable in common with the substance of the second situation (in which behavior is to be predicted). Lafitte calls the use of such predictor situations "substantial abstraction." The ultimate in substantial abstraction is the use of a laboratory situation to measure some general aspect of a person's real-life behavior. The more removed from real life is the test situation, the greater the degree of substantial abstraction, and the more questionable is the utility of transfer from one to the other. The subject matter of psychology is also often reduced in limiting human behavior by means of the instruments employed for its study, and is further reduced in the subsequent "synthetic abstraction" by which data are codified for purposes of analysis.

Lafitte identifies an axiom underlying much contemporary psychological study, but not generally explicitly recognized. This axiom, which he calls the "addition axiom," states that it is possible by simply adding a number of behavior fragments to arrive at a generalization about a person's real-life behavior. In other words, the axiom states that functional processes and their outcomes may be predicted simply by adding up fragments of the processes. Lafitte argues that this statement should be subjected to empirical study, rather than being left axiomatic.

It is apparent that in the course of Lafitte's analysis he lays bare and places in question the basis for much of contemporary psychometrics. In this reviewer's judgment, he overstates his case. Nevertheless, his analysis is valuble in clarifying basic issues.

Having stated his general theoretical position, and illustrated it in brief treatments of such central psychological problems as the nature of man's engagement with his world, the person as cause of his behavior, and the facts of change and persistence, Lafitte undertakes a review of the specific methods of psychological enquiry in the framework of his concepts of substantial abstraction, instrumental definition, and synthetic abstraction, to which the reader has already been introduced.

The rest of the book elaborates Lafitte's position and extends his argument to new areas. Lafitte discusses the nature of psychological laws and their limits, and the extension of psychological evidence to include the investigation of history, of the exceptional, and of the effect of the experimenter's intervention in the situations he studies. He treats the idea that psychology is necessarily involved with the society in which it is active, rather than somehow "outside" that society. And he ends with the unusual proposition that psychology must choose between retiring into a private world of its own, quite removed from the real world which it has been claiming to study, or else take its place as an essentially historical science using as its unit of study the individual person.—Eric Klinger

Integrated Anatomy and Physiology (third edition)

Carl C. Francis and Gordon L. Farrell. C. V. Mosby Co. St. Louis, 1957. 641 pp. with index.

This book, as the authors indicate, is written for those who require "a basic knowledge of the human body and a general concept of its functions." It should appeal to the ancillary groups attached to medicine such as X-ray technicians, physiotherapists, nurses, etc. It includes enough detail of morphology to allow acquaintance with the anatomical structures and sufficient functional discussion to show their main uses. Each chapter is followed by a set of review questions to check the readers' knowledge. Illustrations are numerous and well executed, and a glossary precedes the index.

It would seem reasonable that a student with a good biological background could acquire understanding as well as information from this text. Such a text is largely used for factual study, and the brevity of treatment of various items is made necessary by the broad coverage but this has its disadvantages. The scant treatment of the development of the ovum, for instance, gives little help toward interpreting bodily form, and the reader suspects that this and other ties to understanding might have been amplified to advantage. The book is clearly written and well organized so that reference to various parts is easy.

Sam L. Clark, *Vanderbilt*

Psychotherapy of the Adolescent

B. H. Balser (Editor) International Universities Press, Inc., N. Y., 1957. 270 pp. $5.00

This book consists of the papers and discussions from a Symposium on the Psychotherapy of the Adolescent, held at

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Presents and explains the clinical and pathological pictures induced by viral and rickettsial agents in natural and experimental hosts. Sections on epidemiology and control measures are included in each chapter.

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Associate in Medicine, University of Kansas School of Medicine

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First Edition — *Published 1953*

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the American Psychiatric Association meeting in Atlantic City in May 1955.

The proposed purpose of the book is to provide knowledge in an area of Psychiatry said to have received little attention up to the present time.

To considerable extent the title of this book is misleading. It does not deal exclusively with psychotherapy as practiced to this particular age group, but rather consists of the experience of a group of psychiatrists working with adolescent patients with disorders of varying severity under different administrative organizations.

If one hopes to obtain an insight into the detailed methods of psychotherapy in adolescents, this book will be a disappointment. On the other hand, it does provide an extremely useful reference book for anyone interested in the broad problems of treatment. Here is outlined the methods and techniques employed in the general care of adolescent patients in clinical organizations differing in the magnitude of the symptomatology as well as operating philosophy and administrative setting. Psychotherapy represents only one facet of the subjects discussed in this publication.

One criticism of the book, of course, is inherent in its basic orientation. Members have provided papers without knowledge of the content of others. Therefore it tends to be somewhat broken up into small units with little overall continuity and with considerable repetition. On the whole, however, it is a very useful addition to our knowledge of this particular segment of psychiatry.

G. E. Hobbs, *Western Ontario*

Principles of Surgical Physiology

Harry A. Davis. Hoeber-Harper Book Co., New York, 1957. 851 pp. with index. $20.

This new volume is evidence of the increasing emphasis on applied physiology in the study and practice of surgery. The author has assembled in this book both fundamental physiological principles applicable to surgery as a whole and also those specialized features which apply to a particular organ system. In the first third of this book, topics of universal importance are presented, such as nutrition, water, and electrolyte metabolism. The latter two-thirds is concerned with the physiology of special organs and includes all major organ systems.

This book covers a broad scope of material and detailed discussion of certain fundamentals related to a given topic is necessarily limited. However, the author's treatment of water and electrolyte balance and his discussion of the cardiovascular system merit special mention. On the other hand, the coverage of certain clinical subjects, such as the thyroid, is somewhat brief.

As with any volume of this magnitude, there are several points with which some physicians may differ in opinion. It is not intended to be an exhaustive treatise, however, and the sections devoted to general principles of surgery are quite comprehensive.

Much information is given in summary fashion and there are numerous charts and tables that clearly present laboratory data and diagnostic criteria. In many instances, an outline style of writing has been used in order to accomplish mention of many related fields of surgery and physiology which otherwise would seem impossible to combine in one volume. This might make it more desirable for use by the student and practicing physician rather than by the house officer or specialized surgeon. Reading is admittedly more difficult, but a form such as this makes a quick review readily accessible. In addition, this method of presentation may well be used, particularly by the student, as a kind of "index" to stimulate further literary research in a particular subject.

In bringing together in one edition the principles of physiology as they apply to surgery, the author impresses the reader with the importance of a better understanding of these closely related fields. The work reflects the sincerity of the writer's concern for progress in surgery and will undoubtedly be of considerable value not only to surgeons, but to all physicians interested in this field.

W. Dean Warren, U. of Virginia

Epilepsy

Letitia Fairchild, C.B.E., M.D., D.P.H., Philosophical Library Inc., New York, 1957. 159 pp. $4.75.

Far too little is known of the meaning of his seizure by any epileptic patient. Hopefully, greater scientific recognition is now being given to the distressing need of every person suffering convulsive disorder, and also of each of his associates, to develop psychological help. According to its jacket account, this little book (of about pocket size) is offered as a summary for the public of "what is known about the various

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Edited by JONATHAN C. MEAKINS, M.D. Written by 113 prominent educators. 1956, 6th edition, 1916 pages, 6½" x 10", 318 illustrations, 4 in color. $16.00

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By H. LISSER, M.D. and ROBERTO F. ESCAMILLA, M.D. 1957. 476 pages, 8¼" x 11", 148 plates, 3 color. $18.75

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No other book interprets the fundamentals of diagnosis and treatment to the medical student with such clarity and conciseness as Shands' A HANDBOOK OF ORTHOPAEDIC SURGERY. One of the most generally used orthopedic texts in the United States, this book presents the best accepted information on the subject with particular attention given to clear photographic illustrations. With 17 new discussions added and several chapters rewritten, the 5th edition pays particular attention to diagnosis.

By ALFRED R. SHANDS, JR., M.D. 1957, 5th edition, 725 pages 5½" x 8½", 214 illustrations. $9.75

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forms of the disease, what treatments are available, what special problems are presented by epilepsy in children, and what employments the epileptic can expect to find for himself in the workaday world."

A brief summary of an extremely involved subject may necessarily slight some of its important considerations. Useful statistical reports, valuable discussions of mental deterioration and intellectual defects, and interesting accounts of colonies for epileptics in this publication can distract even scientific attention from the all-important health consideration: the human *individual variant*, the completely unique and entirely special person. This book makes a start in this straight direction of medical respect for human dignity in devoting the greater portion of a page to it under the caption, "The Patient's Point of View". A later edition may well make this concept of human individuality more clearly its central theme. Patient uniqueness is a medical fact which needs to be reiterated, not "taken for granted."

This condensed work is British in its content orientation. For instance, the chapters "Colonies For Epileptics," and "Epileptics And The Law," deal with these situations primarily as they exist in England.

The book is attractively divided into seven chapters composed of brief sections. It lacks an index, but contains a short glossary and helpful appendices entitled "British Epilepsy Association" and "A Quiz On Epilepsy." Its style is matter-of-fact and notably understandable for the well educated reader. Its perspective is mainly "organic," and its treatment chapter features: "Drug Treatment," "Co-operation of the Patient," "Surgical Treatment," "Dietetic Treatment," and "Treatment of Emergencies."

John M. Dorsey, *Wayne State*

Textbook of Physiology and Biochemistry. 3rd ed.

George H. Bell, M.D., J. Norman Davidson, M.D., Harold Scarborough, M.B. The Williams & Wilkins Co. 1957. 1068 pp. with index. $12.00.

The difficulty in reviewing this book lies in the fact that it successfully fulfills its authors' claims for it, but the claims themselves may not be sufficiently ambitious for a modern textbook of these

The Functions and Education of Medical Record Personnel

A Survey Report to the American Association of Medical Record Librarians by The Study Group of the Graduate School of Public Health, University of Pittsburgh.

Antonio Ciocco, Sc.D., Olive G. Johnson, B.A., C.R.L.,
Dorothy Knoell, PhD., and Bertha Pfenninger, B.E., R.R.L.

The Functions and Education of Medical Record Personnel is the first thorough analysis of the role of medical record librarians in today's hospitals. It was begun in 1956 by members of the Graduate School of Public Health of the University of Pittsburgh at the request of the American Association of Medical Record Librarians.

This report studies the functions properly performed or supervised by medical record librarians and develops a curriculum that would enable the medical record librarian to assume her responsibilities most effectively. It combines not only a study of what medical record librarians are now doing but also an inquiry into their *own* recognized needs for undergraduate and postgraduate training. Its goal is comparable to that of the Flexner report in the field of medical education.

In this analysis, full consideration is given to the differing problems and needs of small hospitals, special hospitals, and large teaching hospitals. Medical record librarians, directors, and department heads of medical and health institutions will find this report a complete study of a new profession which is "like the central nervous system of living organisms in preserving and recalling past observations and experience."

78 pages $2.00
1957

University of Pittsburgh Press
Pittsburgh 13, Pennsylvania

sciences. The authors, a physiologist, a biochemist and a clinician, emphasize that the book is intended to serve as an introduction to the study of biochemistry and physiology, with emphasis on mammalian and especially human function, and they recognize that the elements of these two sciences are so inextricably interwoven that it is advantageous to consider them together in a single text, as even the more specialized texts inevitably must do to some extent.

The style of presentation is clear, but descriptive and not quantitative, so that the interested reader will find little to enable him to deal effectively with important calculations concerning, for example, energy metabolism, capillary ultrafiltration, alveolar gas exchange, pH regulation, and reaction kinetics. Statements of fact are very conservative and controversy is avoided, thereby robbing the reader of much that is most delightful in both sciences. By preferring the simple, clear statement rather than the more elegant presentation of principles the authors risk misleading the reader by omission, e.g. the statement that CO_2 diffuses (across the alveoli) about thirty times as fast as oxygen conceals the fact that the free diffusion coefficient of oxygen in water is actually greater than that of CO_2 but that it is the much larger Bunsen coefficient of CO_2 for aqueous membranes which is responsible for its more rapid transport across the alveoli.

Documentation is slight in the text, but there is a brief bibliography at the end of the chapters, with references largely to other texts and to review articles. The index is comprehensive enough for the text material, but the binding is not quite up to the weight of the book. Yet the deficiencies described may represent no more than the exclusion of impedimenta for the reader wishing merely a sound descriptive introduction to these sciences, and for him it is a competent book and readable.

F. E. Yates, *Harvard*

Clinical Unipolar Electrocardiography. 3rd ed.

B. S. Lipman, M.D. and E. Massie. The Year Book Publishers. 1956. 397 pp. with index

The rapid succession of editions testifies to the popular appeal that the volume on "Clinical Unipolar Electrocardiography" has had for many students of electrocardiography. Since the first edition, the book has increased by one-third, chiefly because the atlas section of illustrative electrocardiograms has more than doubled and now comprises almost one-half of the book. The text has remained brief, didactic, and frequently inaccurate. Recognizing the earlier deficiencies, the authors have included a chapter on vector analysis and have added a brief statement on the ventricular gradient. It is difficult to recommend the text with conviction since oversimplification, tempting though it is, will disquiet the righteous electrocardiographer on almost every page.

Hans H. Hecht, *Utah*

The Personnel Exchange

Faculty Vacancies

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• PRINCIPAL SCIENTIST: For the research program of newly established Radioisotope Laboratory in 500 bed V. A. GM&S Hospital; full time teaching and research position with Medical School Staff appointment. Candidates should have a Ph.D. degree in physics, biophysics, or biochemistry. Opportunity for independent research. Salary range $7465-$8645, depending on qualifications and experience. Address: Chief, Radioisotope Service, V. A. Hospital, Little Rock, Arkansas.

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• OBSTETRICS—GYNECOLOGY: Full-time teacher, administrator and investigator for department with active student and house staff program in well-known medical school and general hospital. Person interested in academic medicine as a career desired, preferably under 35. Rank and salary dependent upon qualifications. Address: V-62.

• INSTRUCTORSHIP: Position of instructor of surgery (anesthesia) available immediately at University of California Medical Center. Write John B. Dillon, M.D., professor of Surgery (Anesthesia), University of California Medical Center, Los Angeles 24, California.

• WANTED: Associate to well-established professor in Eastern medical school for proctologic surgery (colon and rectum). Should have A.B.S. or A.B.P., or be willing to obtain necessary training for same. Professorial status available in five years. Must be willing to work and teach; interested in research. Character and personality of utmost importance. Good salary. Address: V-63.

• WANTED: ASCP Registered Medical Technologist with Master's Degree to direct Curriculum of Medical Technology, Department of Pathology, Marquette University School of Medicine. Position is chiefly administrative and teaching. Salary open. Reply: Dr. J. F. Kuzma, Director of Department of Pathology.

• MEDICAL INVESTIGATOR: Full-time position for qualified physician with research group at The Traffic Institute of Northwestern University in three-year study of causation of traffic accidents. Salary: $10,000-$12,000. State qualifications in first letter. Address: Edward S. Petersen, M.D., Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11, Illinois.

• SURGEON: To head university service in veterans hospital, directing residency program and teaching in medical school. Extensive research facilities available in both veterans hospital and school. Full-time candidate preferred. Address: C. R. Hanlon, M.D., Director, Department of Surgery, Saint Louis University School of Medicine, 1325 S. Grand Blvd., Saint Louis 4, Missouri.

• UNIVERSITY OF CAPE TOWN, SOUTH AFRICA: Senior lecturer in physiology. Will teach medical and science students, and be responsible for experimental laboratories. Salary £1980 per annum plus temporary cost of living allowance for a married man (at present £234 per annum). Two copies of application should be sent to Secretary, Association of Universities of the British Commonwealth, 36, Gordon Square, London, W.C.1. A third copy should be sent Air Mail to the Registrar, University of Cape Town, Private Bag, Randebosch, South Africa.

• GYNECOLOGIC SERVICE: Cancer research hospital, state-supported. Combination of clinical work and research; some undergraduate teaching (Univ. of Buffalo students). Stipend $8,000-$13,000 per year. Address: Dr. John B. Graham, Roswell Park Memorial Institute, Buffalo 3, New York.

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References: 1. Statist. Bull. Metrop. Life Insur. Co. *38*:6 (March) 1957. 2. College Study Report: Population Bull. *11*:45 (June) 1955. 3. Novak, E., and Novak, E. R.: Textbook of Gynecology, Baltimore, The Williams & Wilkins Co., 1956. 4. Tietze, C.: Proc. 3rd Internat. Conf., Planned Parenthood, 1953.

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Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

Personnel Available

• PHYSIOLOGIST: Ph.D., male, 35, married Desires opportunity for research with or without teaching. Six years research experience in circulatory physiology. Teaching experience in medical and graduate physiology. Available September, 1957. Address A-282.

• PHYSIOLOGIST-ENDOCRINOLOGIST: Mature male, Chicago Ph.D. Wide teaching, research and research directing experience in Human General, Endocrine, and Behavioral Physiology. Publications. Societies. Desires graduate or medical teaching position with ample time and facilities for research. Will attend Federation meetings. Address: A-283.

• MEDICAL LIBRARIAN: M.A., M.S., male, 38, married. Now completing third year as head of library serving medical and dental schools and affiliated hospitals. Have reorganized procedures, hired and trained a staff to do the library's work. Now seek more responsible post in larger library. Address: A-285.

• PHYSIOLOGIST: Ph.D. Currently teaching and research in college of veterinary medicine (5 years); past experience in zoology-physiology in liberal arts college (5 years); radiobiological experience — summer 1956; publications; desire academic or responsible research position. West or midwest preferred, but other locations considered. Present rank, assistant professor. Address: A-287.

• MICROBIOLOGIST: Ph.D., age 35, seven years medical school teaching experience. Desires teaching and research position. Main interests are in nutrition, metabolism, genetics, and the mode of action of chemotherapeutic agents. Address: A-288.

• INTERNIST: Age 40, certified by the American Board in Internal Medicine 1950. Rank, assistant professor of medicine in eastern medical school. Interested in metabolism and renal disease, but has broad training including most sub-specialties. Written and has had published about 30 manuscripts. Desirous of heading own section and instituting some organized clinical investigation, as well as clinical teaching. Address: A-289.

• LAWYER-PHYSICIAN: Age 30, will complete internship in June 1958, possesses wide legal general practice background; wishes full-time position teaching legal medicine and associated fields starting September 1958; willing to devote part of time to administrative duties. Address Box-A-296.

• SURGEON: M.D., Ph.D. Presently associate professor, large metropolitan medical school Member of leading societies. Numerous publications. Desires geographical full-time position in medical school located in less populated area with opportunities for experimental and clinical research and teaching. Address: A-291.

• MEDICAL BACTERIOLOGIST-Ph.D., excellent background of responsible research, teaching, diagnostic bacteriology and administrative experience in colleges, universities and hospitals. Desires position in teaching and/or research in medical school, as Bacteriologist-in-Charge of research in some area of medical bacteriology, preferably TB, or related position with opportunity for some independent research. Address: A-292.

• PHYSIOLOGIST: Ph.D., 38, interested in medical teaching and research. More than forty publications in protein metabolism, enzymology, respiration, endocrinology. Eleven years experience in teaching and research. Capable administrator, many graduate students, large grants. At present Associate Professor, $9000. No chance for advancement in present position. Location immaterial. Address: A-293.

• PATHOLOGIST: Completing four-year residency in large Eastern teaching hospital in June 1958. Family. No service liability. Desires staff position in teaching hospital, affording experience in both pathologic anatomy and clinical pathology. Address: A-294.

• PHARMACOLOGIST: Ph.D., 29, postdoctorate training steroid biochemistry, publication, 2 yrs. medical school, first part National and state boards, interested in teaching with opportunity to complete M.D. degree. Available February 1958. Address: A-295.

• SURGEON: An experienced British surgeon wishes a senior academic post. Undergraduate multi-prizeman and scholar in medical subjects. Qualifications: M.B., B.S., Honors. Durham, 1939; F.R.C.S. Edinburgh 1942. M.S. Durham, 1944; F.I.C.S. 1956. Experience: War service, surgical specialist, Royal Air Force. A senior general surgeon with senior academic career. Many practical research papers published. Address: A-290.

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• Ex-professor of medicine, graduated from South American faculty, specialized in cardiology, would consider offers for teaching medicine in an Eastern university. Best references. Address: A-297.

• Internist: 39 years, certified, associate professor of medicine, head of large medical service with training programs for nurses, interns, residents, postgraduate fellows and medical students. Research and publications. Desires position with medical school heading section or department. Research opportunities desired, practice optional. Address: A-298.

• Clinical and Research Psychologist: Ph.D., male, on full-time medical school faculty. Now heading psychology unit in large medical school and directing extensive research grant and contract program. Scientific publications, member of professional and honorary societies. Desires similar position: heading department and part teaching, part research, at associate professor level. Address: A-299.

• Endocrinologist: 29, married with family; Ph.D. in zoology, 1955; Teaching experience in physiology and endocrinology; now in second year as NIH postdoctoral fellow; research interests in reproductive and lactational physiology; publications; desires teaching-research position. Will attend Federation meeting. Address: A-300.

• Psychiatrist: 35, M.D. and M.P.H. degrees; Board-certified in psychiatry, with training and experience in clinical, community, and public health psychiatry, and in administration, teaching and research. Publications. Currently assistant professor of psychiatry at outstanding medical school. Desires appointment at higher level on faculty of medical school or school of public health. Address: A-301.

• University Graduate, 27, wants medical writing job with reputable company. February 1957 graduate of University of Missouri, B.J. and B.A. in zoology. Address: A-302.

• Obstetrician-Gynecologist: Age 39, Full-time teaching experience in U. S. and abroad. Currently instructor at medical school; seeks relocation and advancement. Available beginning 1958. Address: A-303.

• Registered Nurse, Journalism Training: Seeks medical writing position. Medical secretarial, laboratory experience. Publications. Address: A-304.

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Report of the Conference on Preventive Medicine in Medical Schools (clothbound, $1.50).

Admission Requirements of American Medical Colleges—1956 ($2.00).

Fellowships, Funds and Prizes Available for Graduate Medical Work in the United States and Canada—4th Edition published 1954 ($1.50).

By-laws of the Association of American Medical Colleges (Revised 1955).

Minutes of Proceedings of the Annual Meetings (1947-1956 Minutes now available).

Public Understanding and Support of Medical Education.

Journal of Medical Education

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Reprints from the Audiovisual News Section of the Journal of MEDICAL EDUCATION.

Films in Psychiatry, Psychology and Mental Health (available from the Health Education Council, 10 Downing St., New York 14, $6.00).

Films in the Cardiovascular Diseases (Part I available from the American Health Association, 44 E. 23rd St., New York 10, $2.00. Part II available from the Medical A-V Institute, $2.00).

Films published by the MAVI are included in the Film Catalog.

Publications of Related Organizations

Suggestions for Supplementing the Medical Curriculum in Time of National Emergency (Joint Committee on Medical Education).

Hospitals Participating in the Matching Program 1957 (NIMP publication).

Results of the Matching Program 1957 (NIMP publication).

The Student and the Matching Program 1957 (NIMP publication).

Medical College Admission Test—Bulletin of Information 1956 (Educational Testing Service publication).

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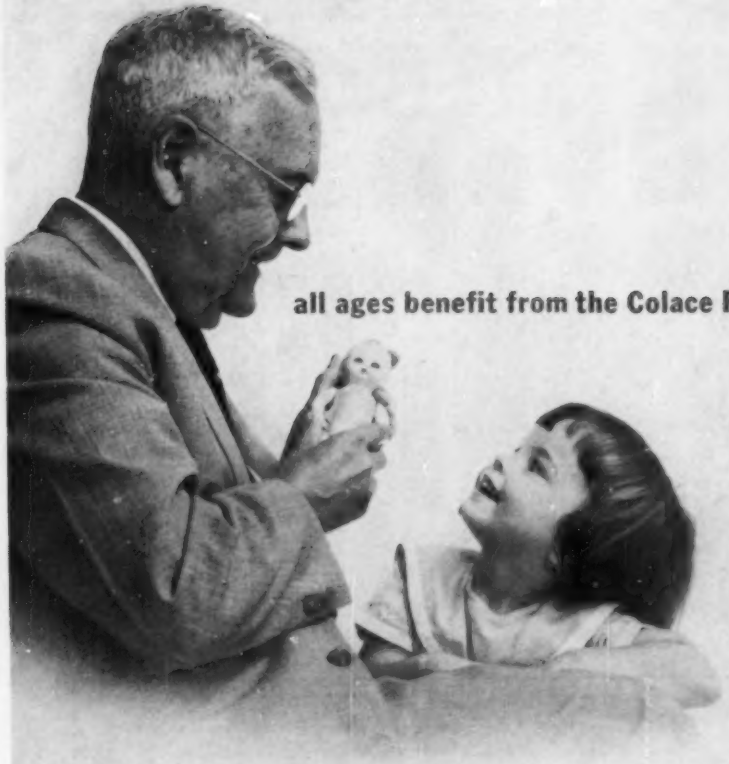

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